UFO Phenomena and the Behavioral Scientist

edited by

Richard F. Haines

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My sincere appreciation of assistance would not be complete without also acknowledging the gentle patience of my wife Carol who, for many months, made it possible for me to "get some work done in the den" at the expense of herself and my daughters. Yet I want to dedicate this book to Cindy and Laura, ages 13 and 8, for their encouragement to me. It was partly out of a realization of the apparent mystery of the UFO phenomenon that I began this work. The girls had a way of making some things said here somehow simpler. Each in her own way, both girls supplied me with fresh perspectives on how to look at mysteries. I just hope that this book will help the time come sooner when they will not only understand the true nature of the UFO phenomenon but also the most effective process for discovering what is considered mysterious.

R. F. H.

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People have been saying that there is a "psychological" component to the UFO phenomenon for many years. After saying this, however, few pursue the matter any further, including those who are trained in the behavioral and social sciences and who would seem to be in a good position to investigate this component. While it may be a truism to say that a phenomenon in which human observers are involved possesses a psychological component, it is likewise a truism to say that there also must be a "sociological" component as well. For isn't everyone a part of a culture which, however subtly, certainly must impress its values and opinions, its dogmas and canons upon its people? Who could argue for long that citizens of a nation are not influenced by their Zeitgeist? Is not the human psyche molded moment by moment by all kinds of reinforcements about which we know almost nothing, at least at the conscious level? So the continuing craze over UFOs must also affect our attitudes and interpretations about the phenomenon itself.

And, if we were to consider the UFO phenomenon only in terms of its psychological and sociological components we would be excluding other equally important dimensions. There are other components to the UFO phenomenon for which it is more difficult to assign labels. There appears to be a "spiritual," or at least "ethereal," component to many UFO reports. Colin Wilson has said, "In the past few centuries, science has made us aware that the universe is stranger and more interesting than our ancestors realized. It is an amusing thought that it may turn out stranger and more interesting than even the scientists are willing to admit" (The Occult, Random House, 1973). It is becoming increasingly clear to some of us who are looking at the bizarre reports from clearly credible UFO eyewitnesses that it may well be this so-called spirit dimension that makes the phenomenon so difficult to take seriously. The fantastic nature of some UFO reports certainly borders on the insane; who but the psychiatrist would want to spend time looking into such reports? And so if it is science that has made us more aware of the strange-

ness of the universe, it is such as unidentified flying objects that has made some of us more aware of the great need to understand this "ethereal" dimension within the UFO phenomenon and its eyewitness. One of the challenges we face is trying to discover whether this spiritual component lies only within the eyewitness (and is imputed to the phenomenon experienced) or whether the opposite is true.

Another component to the UFO phenomenon for which it is difficult to assign a label is the seeming power of the UFO experience to radically change lives. In some instances of alleged encounters with extraterrestrial beings people appear to exhibit radical personality changes which border on a life of fanaticism. Many people have virtually relinquished their secure, middle-class life styles for a new life of waiting for a second, third, or fourth communication from their visitor from outer space. As Jacques Vallee put it, "We are not here dealing with escapism--we are dealing with the next form of religion" (The Invisible College, E. P. Dutton, 1975). He points out that there now exist in most countries of the world a sub-culture based on the idea that humanity has a higher destiny than that of merely working, recreating, sleeping, and procreating. Is it merely that such people want to radically change their life style or is it that they do not have a choice?

A careful study of the UFO literature also suggests that there is an "extra-dimensional" component to the UFO phenomenon. Some people who claim to have encountered a UFO (or at least a strange and unexplainable sensory apparition) find that they cannot account for a portion of time. Are such time lapses evidence for an extra-dimension associated with that time and place or can they be explained as representing a "normal" human response that has nothing at all to do with the encounter? Until we more fully understand the true nature of the core phenomenon, we must not automatically disregard the possibility of such an "extra-dimension."

We cannot proceed with our discussion without also acknowledging a "physical" component as well. Indeed, the UFO sighting is always embedded within some context of time and space. While there may not be any directly recordable evidence (to independently substantiate the eyewitness report), there usually is available a verbal or written report of a subjectively real event that leaves the witness with the feeling that the UFO was solid, three-dimensional, and possessed mass. In many cases (some of which have been documented

by Ted Phillips of the Center for UFO Studies in his "Physical Traces Associated with UFO Sightings," July 1975) a UFO is sighted at a spot which afterward is found to be measurably different from surrounding areas. Some of these physical changes in the ground include soil dehydration, radioactivity, chemical changes, depressions, burn-damage, dead or damaged vegetation, and other effects. Effects similar to turbulence have also been reported in the atmosphere and a body of water in which a UFO has been seen. Serious students of UFO phenomena will have no difficulty finding reports of these and other kinds of "physical" effects associated with UFOs.

While many self-proclaimed experts in UFOlogy continue to study the voluminous files of reports of the kinds of experiential components described above, very few have undertaken to study the eyewitnesses themselves or the social context in which the sighting takes place. The contributors to this book are some of the few "brave souls" who have. In the relatively trackless desert of UFO studies one can easily become lost for lack of a stable directional referent; fortunately, the present authors bring with them from their own academic training and experience in the scientific method, a type of stabilizing compass which helps provide direction to the "journey." Established professionals in their own right, each of the present contributors brings interesting and unique points of view about the subjects discussed. Collectively, these authors have made a serious attempt to show that the UFO phenomenon is, indeed, worthy of further scientific investigation.

These contributors have even gone beyond this important starting point by providing many helpful ideas on investigative methodology that others can use in their own UFO studies. The old Chinese saying, "If you give a man a fish he is fed for a day, but if you teach a man to fish he is fed for life," is also apt here. For these suggested techniques for study help lay the groundwork for others who will become the students of the phenomenon in the future.

This book represents one of the first attempts to study the reporters of UFO phenomena rather than the UFO reports themselves. This book should be of wide interest, then, because it relates to everyone. All of us are potential UFO witnesses! Since we cannot make a UFO do what we want it to (for instance, appear on the lawn at the National Academy of Sciences building in Washington, D.C., for detailed exam-

ination) in a manner of speaking, we are at "its" mercy. * Having interviewed numerous eyewitnesses of UFO phenomena and reviewed thousands of detailed UFO files it is my belief that the great majority of these witnesses did not consciously want the encounter to happen in the first place. Many sincerely believe themselves to have been unwilling participants in the event. It follows, then, that anyone anywhere, at anytime might experience UFO phenomena. People from all walks of life, possessing a wide variety of perceptual, intellectual, and physiological capabilities, are experiencing UFOs and associated phenomena. Investigators of the UFO phenomenon must recognize this fact.

Investigators must come to understand that they have been accepting UFO reports far too uncritically to date. Every attempt should be made to uncover the motives one has in reporting a sighting (fully considering the witness's right to privacy). And, UFO investigators should be far more cautious than previously about accepting UFO reports from people about whom virtually nothing is known concerning their credibility prior to the sighting. One purpose of the present chapters is to examine critically some of these human and social factors that can significantly influence the reliability of a UFO report.

In a book on perception of unexpected, short-lived phenomena (Observing UFOs, published by Nelson Hall Co., 1979), I tried to show that humans possess various limitations as well as capabilities in their ability to perceive things. Once armed with such knowledge, investigators are better able to understand how people can be tricked (deliberately or not) into believing something that simply is not true, and vice versa. The present work may be considered a sequel to that earlier book. This work continues (in greater depth) discussions of various psychological, sociological, and anthropological subjects raised earlier. On behalf of all of the present contributors I urge the reader to approach these chapters with an open mind. We hope that these chapters will serve as useful contributions to future UFO studies not only by providing helpful investigative methodology but also by giving some new insight into the true nature of the core UFO phenomenon.

R. F. H. Los Altos, California April 1978

*Jacques Vallee has suggested that unidentified flying objects may try to seek confrontation with us on their own terms.

Chapter 1

INTRODUCTION

Richard F. Haines

This is a book about the eyewitnesses of UFO phenomena and many of the complex sociocultural factors that surround them. It was prepared for three reasons. They may be summarized by the three words, sharing, encouraging, and challenge.

Sharing. There comes a time in the development of any social event when the discipline-minded professional should speak out about what he thinks is going on and what he believes should be done about it. While most of the early writing on UFO-related subjects dealt with the bizarre features of the phenomena, the majority of professionals were unwilling to comment (in print) on these features. Times are changing. There is a growing acceptance of UFO-related phenomena as a legitimate subject for personal and collective study. And so this book can be viewed as a means for several behavioral scientists to share their own beliefs without being inhibited by the unreasonable editorial policies or excessively severe space limitations so often imposed by scientific journals and UFO magazines.

Every attempt has been made to bring together a balanced collection of essays written by professionals in social and experimental psychology, sociology, and anthropology. An attempt has also been made to organize these chapters into logical groups so that a common thread may connect one presentation with the next. Such threads are necessary in passing from one often dark cavern of UFOlogy to another.

Encouragement. The second major reason for preparing this book is to try to encourage other professionals to study UFO phenomena on their own. There is room for participation by people in almost all scientific disciplines. As I have tried to make clear elsewhere (Haines 1979), * almost

*References in the text may be found in full at the end of each chapter.

every scientific discipline can find something of legitimate concern in the UFO phenomenon. Nevertheless, this book should not be considered as representing anything more than a preliminary attempt to focus one segment of the scientific community, viz. the behavioral scientists (including anthropology), upon the phenomena subsumed under the general label unidentified flying objects. The range of human responses to UFO phenomena is extremely broad, as one can see by reading good books on the subject. Some of these responses are listed here in order to emphasize the numerous scientific disciplines that should be focused upon the subject. In his book UFOlogy, McCampbell (1973) lists 42 different sounds that have been reported by UFO witnesses (p43). Over a dozen cases were cited where specific odors were experienced (p34) with descriptions that are strongly suggestive of the presence of SO_2 being the most numerous. He also lists sensations of body heating, first and second degree burns, temporary paralysis, loss of consciousness, painful prickling sensations, headache, eyepain, loss of vision, nausea, and vomiting (pp60-2). He goes on to discuss the possible involvement of electromagnetic energy in the microwave region of the spectrum as a dominant factor in producing many of these "symptoms."

Still other UFO-related experiences include numerous incidents closely similar to poltergeist, telepathy, and other psi phenomena, hallucinations, personality changes, speech alterations, visions and other "creative" inspirations, and even a possibly expanded awareness akin to that claimed by users of LSD and other psychedelic drugs. So-called astral projection, clairaudience, and precognition are also cited [Flying Saucer Review, 16(5): 18-20, 1970]. Still other "symptoms" include alleged materialization of matter, spectre-like UFO occupants, dream-like experiences, "psychic-type projections" into the mind of the observers, and the suggestion that contactees may be controlled by UFOs for their purposes [ibid., 23-4] and "headaches, dizziness, visual, auditory, and olfactory hallucinations, emotional changes, delusions, amnesia with psychotic aspects, epilepsy like discharge with loss of consciousness" [op. cit., 12: 4, 19, 1966]. While this list is not complete it should serve to illustrate the general scope of what people claim to be experiencing during and after an encounter with a UFO.

There is also a wide array of alleged physical effects produced by the presence of a UFO and investigators have begun to document them (e.g., Phillips 1975). However, they

will not be listed here since the primary emphasis is upon the human being and his responses.

Challenge. The third reason for preparing a book such as this is to attempt to extend a positive and credible challenge both to those who are already working on the UFO question (to study it from new points of view), and to those who have not yet taken a serious look at the evidence. Perhaps those who have been involved in serious UFO studies for some time need to step back from their own fields of interest and take a fresh, new look at it. New points of view are clearly a part of the scientific tradition. This suggestion is not meant to sound presumptuous. Certainly, many UFO investigators are both broad-minded and intelligent. Certainly there are investigators interested in the social consequences of an alleged encounter with extraterrestrials. There are investigators interested in the psychological factors that underlie our responses to unexpected, ambiguous, and even threatening stimuli. There are investigators interested in the possible influences of one's culture upon one's subsequent perceptions of strange lights in the sky. Nevertheless, the contributors of these chapters felt that there were, indeed, UFO investigators who cared little for any subject except their own "pet." While there is nothing wrong with keeping such pets they may limit our search for the core identity of the UFO phenomenon. Such one-track approaches can prevent us from being as creative as we might otherwise be. It is hoped that the information given here will help provide new insights about the UFO phenomenon as well as the human witnesses who are involved.

This challenge also must be extended to others who have not yet become seriously interested in the matter of UFOs. The search for fresh, creative talent must go on continually. Jacques Vallee points out what he has found to be true to date: "...I have had a chance to examine many documents like the ones I have quoted [in his book The Invisible College, Random House, 1975]. Far from revealing government authorities engaged in quiet research, they give a picture of incoherent restlessness in every country. Meeting behind closed doors, scientists and military men swap scary stories, while the real phenomena go on, unstudied, unconcerned, UNIDENTIFIED!" (p209).

I should also point out a few of my own personal inclinations about both UFOs and some of the symptoms UFO phenomena produce. One of these is that there may not be

a single core phenomenon or stimulus behind "the" phenomenon but rather a number of either independent or interrelated physical or psychic events which become apparent only when they interrelate (or inter-react) in certain ways. A chemical catalyst may be an analogy for this idea. Another personal inclination is that UFOs probably represent an entirely new dimension of what we call "reality"; perhaps we may just now be intellectually able to handle the deeper implications of what this new dimension represents. No matter what UFOs eventually turn out to be, I believe that we will be confronted with some exciting surprises that will alter our consciousness of ourselves as human beings. Even though I have never seen a bonafide UFO myself I continue to look skyward.

While there are certainly some people who would be disappointed and even emotionally distraught if the UFO enigma were somehow suddenly explained, I would not be. I would welcome the new knowledge about our world and its nature that would undoubtedly result from a full understanding of unidentified aerial phenomena. While there may be some persons today who find their ego-support needs fulfilled through their involvement in UFO studies, I do not think there are many. This subject would make a most interesting study in itself, much like the theoretical studies on what might happen to our society if "peace" suddenly broke out. I think I can speak for the present authors in saying that the probable benefits from understanding what UFOs are far outweighs any personal gratification that might come from keeping UFOs a mystery.

Another personal belief about UFOs is that their description is so basically similar throughout the world that the presence is suggestive of a phenomenon not only psychological in nature but also prototypical in the sense Carl Jung uses the term (Jung 1959). By prototypical is meant "fundamental to the formation of other image symbols." Thus, UFOs may represent an aspect of nature which transcends human culture. Whether or not it originates in space, however, is quite another issue. The so-called extraterrestrial intelligence (ETI) hypothesis for the origin of UFOs is but one of several possible alternatives which have already been discussed in detail elsewhere (Blum & Blum 1974, Bowen 1969, Hall 1964, Sagan 1973).

Before we progress to a brief overview of the chapters to follow, a word of explanation is in order concerning the

various contributors and their own points of view. Certainly it is to be expected that each of the present authors has couched his or her chapter in a larger and sometimes unstated frame of reference which has its own philosophical boundaries. The reader should not expect the present contributors all to be "coming from the same place" so to speak; each represents a different set of understandings about the nature of reality and of the diverse phenomena in question. Indeed, it is even possible that these authors may be referring in their chapters to quite different data. It is possible the reader could be led to assume certain things that were not intended, merely because these philosophical boundaries were not set forth at the beginning. Of course one of the important boundaries of each author's frame of reference concerning UFOs is his definition or explanation of what the UFO phenomenon likely represents. In order to help clarify this important issue at the outset, I asked the authors to prepare concise statements of what the UFO phenomenon represents to them. These personal statements are attached to equally brief biographical sketches and placed together at the back of the book. This information should help the reader gain some greater understanding concerning the authors' own beliefs.

This book is organized in four parts. Part I has to do with various sociological and cultural factors that are thought to be intimately related to UFO phenomena and their percipients.

Chapter 2, "Social and Cultural Factors Influencing Beliefs about UFOs," is by Phillis Fox, assistant professor in the Department of Sociology, California State College, Stanislaus; she reviews her own research into the reasons why people who have seen UFOs and those who haven't believe that at least some UFOs are extraterrestrial spaceships. She also considers various factors that influence our beliefs about the nature of UFOs which she obtained through the administration of special questionnaires designed to compare the beliefs (including selected personal characteristics) of people who claim to have seen a UFO with those who have not so claimed. Three theories are presented. One is psychological, one social-psychological, and the third cultural in orientation. Dr. Fox offers the statement that "when confronted with an unidentifiable stimulus, the individual is likely to rely on other people to help in its interpretation." There is no doubt that we are social creatures, strongly influenced by our culture. The very spirit of the age in which we live influences

what we believe to be true and what we believe to be not true. (An understanding of this important factor by virtually all of the present authors is apparent; such an understanding may be seen to play an important role in shaping what the contributors say and how they say it.)

Like the other contributors to this book, Dr. Fox is a part of that group of social scientists who would like to see theories of the paranormal tested with the same degree of scientific rigor that is required in other fields of endeavor. While the data with which the UFO investigator works may be both difficult to obtain, and difficult to fit into an existing interpretative framework, they are no less usable data. With the proper documentation and scientific control conditions, UFO data are as amenable to rigorous scientific study as are any other kind of data. Of course there is one major difference here in that the data usually constitute secondhand evidence, filtered through the senses and memory of human beings, rather than read-outs from sensing/recording instruments. Yet the human may also be considered as a fairly reliable sensing/recording "device" under certain circumstances. We need not necessarily discard any data that come from the human observer--indeed, we must not or else much of what we now know about ourselves and our universe would have to be discarded as unreliable. And so it is the secondhand nature of the UFO data that makes the active involvement of social scientists so essential. It seems to have been people with training in the physical sciences who have done most of the theorizing, analyzing, and serious writing about the UFO phenomenon to date. These individuals may not have understood as well as they might the methods now available to trained behavioral scientists. Of course, the present book should help change this state of awareness.

It is well known in such fields as psychology and sociology that humans influence one another through very indirect means. One such means of indirect influence is discussed in the third chapter.

In an interesting article dealing with the impact of science fiction upon man's various enterprises, Nichols and Alexander (1977) comment: "It is almost ironic that the media that have made science fiction more accessible to the masses (TV, radio, movies) were once the speculations of science fiction. There is an amazing connection here, a subtle yet also overt interrelation wherein the medium expounding the message also is (and increasingly becomes) the message it-

self. We live in a scientific age, an age of future shock--an age in which it is becoming more difficult daily to distinguish between everyday reality and science fiction (p7)." In this same context then, it is important to consider the possible influence of science fiction movies upon UFO reporting. This is the primary objective of Chapter 3, "The Zeitgeist of the UFO Phenomenon," by Armando Simón, an experimental psychologist at the University of Southern Mississippi, Hattiesburg. Zeitgeist is a German term meaning spirit of the times; Simón's chapter considers the effects of science-fiction films upon our culture, our perceptions in general, and our cognitions of UFOs. Films that depict either extra-terrestrial beings visiting Earth or mankind's exploration of space are discussed. Simón maintains, too, that our culture also influences the content of these film to some extent. He writes, "The anthropomorphic attitude of artists and screen-writers is not only directed at the morphological aspects of aliens and UFO occupants, but to motivational and technological aspects as well. The same may apply to scientists" (emphasis added). An appendix to this chapter presents a comprehensive list of English-language science-fiction movies dating back to 1902 which deal with the stated themes. When the number of SF films is plotted in ten-year intervals, an eight-fold increase is seen to have occurred in the decade from 1950 to 1960 compared with the previous ten-year period. One inference that might be drawn from this chapter is that serious UFO researchers should begin to take a closer look at the relationships that may exist between the content and underlying philosophical beliefs of currently popular SF films and the details (and reporting frequency) of UFO sightings. *

*In an April 1977 letter addressed to all of the major UFO organizations in America, I suggested the possibility of such a social impact upon future reports of the "close encounter of the third kind" (CE-III) which could result from the release of the Hollywood movie of the same name. At the time of writing this chapter (with the movie in about its 15th week of nationwide showing), an informal count of new (previously unreported) CE-III cases reported to the Center for UFO Studies has not disclosed a significant increase. What has taken place, however, is a growing tendency for people to report close-encounter experiences which took place in the past. It is too soon to gauge the full sociological impact of this movie, however.

Part I concludes with Chapter 4, "Humanoids Reported in UFOs, Religion, and Folktales: Human Bias Towards Human Life Forms?," by Frederick V. Malmstrom and Richard M. Coffman, both of whom have backgrounds in anthropology and psychology. The chapter compares the physical characteristics of three groups of primarily humanoid subjects. The first group is a stratified random sample of both ancient and modern deities, the second is a random sample of principle characters in children's folktales, and the third is a random sample of reported UFO occupants. The height and humanoid characteristics of these three groups of figures are compared. A closer correspondence is found between the distributions of height of UFO occupants and children's folktale characters than between the height of UFO occupants and deities. These height data do not support the currently popular hypothesis that ancient gods were UFO occupants. We are left, therefore, with the possibility that the alleged physical characteristics of UFO occupants may be primarily a product of human imagination.

Part II contains three chapters that concentrate more upon the eyewitnesses themselves than their culture.

What does the UFO experience have in common with other kinds of anomalous experiences? What can be learned from a review of existing data on the witness of anomalous events such as UFO phenomena. And what can be learned about the environment in which he makes his sighting? What sorts of working hypotheses can be developed about the perception of anomalous events which will help guide future research? These and other related questions are raised in the three chapters of Part II, which have to do with various eyewitness factors.

In Chapter 5, Ronald M. Westrum, assistant professor in the Department of Sociology, Eastern Michigan University, begins his discussion of "Witnesses of UFOs and Other Anomalies" by defining two types of UFO experiences, "low-threshold," (so-called normal UFO experiences which conform to commonly-accepted criteria and which are likely to be accepted by others as having been real), and "high-threshold" (in which the observer is not cognitively prepared for the sighting and is likely to perceive it as being something else). He suggests that educated people may be more willing to interpret strange events in the sky as being anomalous because they are more confident in their ability to act discriminatingly than are people with less education. Then he discusses factors related to

how these experiences are discriminated and cross-checked by the witnesses themselves as well as influenced by others. Also discussed is the important issue of what kind of people see UFOs. Drawing upon the findings of public opinion polls (which offer fairly reliable measurements of variables of relative unimportance), Dr. Westrum treats several interesting inconsistencies in the polls, one of which is a recent increase in the proportion of people who claim to have seen a UFO. The author suggests the higher sighting rate of 1973 (compared with earlier polls) might be caused by a lowering of the "threshold" for a UFO sighting. Since more people now know approximately what UFOs are supposed to look like, fewer identifying cues are now needed to identify them. In a discussion on the nature of UFO sighters based upon UFO reports (involving variables of importance, largely, but unsystematic data), he suggests that sociological factors are not particularly related to "high-threshold" UFO experiences but may well be related to the willingness and ability to report such experiences. He also finds evidence (as does Dr. Schwarz in Chapter 6) that UFO witnesses seem to be normal rather than mentally ill persons. Dr. Westrum concludes by saying that while UFO sightings are related to social factors, which factors these are exactly depend on the nature of the UFO experience. For instance, low-threshold experiences are inversely related to age and high-threshold experiences are related to when and where the witnesses find themselves (most often in rural areas at night). The available evidence also seems to be consistent with the belief that UFO sightings are not due to hallucinations.

While the eyewitness may be viewed as a unit of some larger social group he can also be viewed as a single, complex psychological "unit" in himself. The fields of psychiatry, clinical, and social psychology have provided ample evidence of this. In Chapter 6 some of the prominent psychiatric and parapsychiatric aspects of the UFO experience are discussed. The author is Berthold Eric Schwarz, a psychiatrist in private practice in Montclair, New Jersey; he has titled his contribution "Psychiatric and Parapsychiatric Dimensions of UFOs." This chapter concentrates upon the various methods used by psychiatrists to study witnesses of UFO phenomena. Schwarz reviews earlier work by Jung, Meerlo, Walker, Rhine, Grinspoon, and Persky in terms of their theorizing about the UFO experience. He remarks, "At the least, UFO cases should merit the same care that is given to clinical syndromes, seen in practice and reported in professional journals." Later he says, "When all the various

authors' methods of differential diagnosis are exhausted, it would seem that there is still a formidable unexplained UFO residue. Because the data are so strange in many cases, it is not unusual that psychiatrists would question the emotional health, if not the professional integrity, of a colleague, rather than first checking out the data carefully and then trying to discover what their colleague did say about the case at hand." This chapter also treats such subjects as the role of the psychiatrist, possible dangers to witness and investigator, hypnotism, parapsychiatric techniques, and other areas of interest to the broad-minded practitioner of the healing arts.

Chapter 7, the last in Part II, is titled "Speculations on the UFO Experience" and is written by Harold A. Cahn, a researcher in private practice living in Tucson. Some readers might consider this chapter to be at variance with the others. Dr. Cahn begins with the premise that consciousness "is both primordial and absolutely creative." That is, consciousness is not a product of our minds (the mentalist's view) but rather it creates various "models."* What we call nature, according to Cahn, is but one of these models. He comments, "Nature 'out there' is out there only in the sense that it is a creation of awareness; not that it exists independently of consciousness and is governed by inviolate laws." He argues that, since there is no way that we can establish the independence of nature, we should start with what is actually given, namely, our awareness of nature. Human beliefs, then, are seen as both enabling and limiting us to manifest the intent of our awareness. One point of this discussion is to establish a foundation for dealing with so-called

*The same view has been taken by others: Rucker says in his Geometry, Relativity and the Fourth Dimension (1977), "The goal of this book has been to present the universe as a geometrical object that happens to enjoy the property of being perceived by us to exist" (p117). And the renowned French scientist Pierre du Noüy (1947) wrote, "Human science is based on the physical study of phenomena. We try to link these facts together by means of laws, that is to say, by qualitative and sometimes quantitative relations. But these phenomena only exist, as such, in our brains. Each has an external, objective cause, and we cannot affirm that there is an identity between this cause and the phenomenon which results from it within ourselves" (p6, emphasis added).

paranormal phenomena. According to Dr. Cahn, "paranormal phenomena reveal structural characteristics of the mentations used in constructing them." We limit ourselves by believing in the objectiveness of nature operating under inviolate laws. This leads Cahn to the motto, "All thinkable relationships exist." Thus, to say that one is able to think up some particular relationship is also to say that the machinery for manifestation of that intent of consciousness exists. "By using it [the 'machinery'] the UFOnauts solve their problem" (of traveling through space and/or time, seemingly to materialize and dematerialize).

Part III has to do with various eyewitness reporting factors that are thought to accompany the UFO experience. What may be said about the process of reporting a UFO sighting to the authorities when one is likely to be ridiculed for doing so? And how are these reports received by society? These are the kinds of questions dealt with next.

In Chapter 8, Ronald M. Westrum discusses "UFO Reporting Dynamics." He begins by presenting several mechanisms used in controlling uncertainty (i.e., "buffers," "filters," and "critics"). Buffers are those persons who do not disclose their UFO experiences--presumably to protect the rest of society from having to come to grips with the "theoretically harmful effects of an anomalous experience." Filters are those mechanisms of society that permit some information to be disseminated and some information to be blocked. Critics are usually persons who help keep the general public from having to change their "cognitive map"; an act that might be required by accepting a reported event. This may be done by challenging the validity of the reported experience, the integrity of the eyewitness, the motives of the communicator, or by other means. Another subject treated here is why reports are made public at all. Various motives are considered as are reasons why some UFO witnesses do not report their experiences to others. Directly related to this subject is another, namely the "propensity to report." This is a particularly crucial subject since our assumptions that UFO sightings will be reported are a vitally important part of our evaluation of the report's validity. It has been estimated (by Hynek in private correspondence, 1978) that only about one in ten eyewitnesses make a report of their sighting to some authority like the local police, Federal Aviation Administration, or a UFO study group. One should ask, how can other non-reporting witnesses be persuaded to come forward? Dr. Westrum's chapter concludes

with discussions of the "report release process"--i.e., the release of similar types of experiences of others that occurred before the initially publicized report--and the so-called "silly season" that seems to be associated with reporting UFOs. The silly season refers to those times when waves of sightings are publicized. A possible causal factor of the mass nature of these reports might be found in the motives of certain editors who seek whatever anomalous material is at hand simply to boost their circulation. However, no such relationship has been proven to date.

Chapter 9 is entitled "Limitations of Human Verbal Behavior in the Context of UFO-Related Stimuli" and is by Michael A. Persinger, associate professor, Laurentian University, Sudbury, Ontario. Dr. Persinger believes that the apparently elusive and insoluble characteristics of the UFO problem are primarily a function of the indiscriminant and emotionally loaded labels we apply to most (if not all) of our ambiguous or unexpected experiences. In the context of unusual, infrequent, and anxiety-producing stimuli, such human behavior as thinking and memory are disrupted, altered, and even suppressed in various ways. These methodological "limitations" of behavior are so numerous that UFO-related verbal sequences collected after the event have little empirical value and exacerbate the confusion. A basic thesis in this chapter is that "the dispassionate and systematic application of known behavioral principles to the UFO problem suggests that the major component of the phenomenon involves confounding artifacts from human verbal behavior." Whereas Dr. Cahn's thesis is that nature is but a creation of our own consciousness, Dr. Persinger's is strongly behavioristic; he sees verbal behavior lying "at the core of the UFO dilemma."

Of the topics discussed in depth in Chapter 9, several are of particular relevance to the UFO enthusiast: "changes in behavior without awareness," "modification of memory," "the emotionally-loaded term UFO," "suggestibility," and hypnotically-induced "regression and suggestion" to mention a few. He appeals for more independently-obtained and instrument-derived UFO data that would allow bypassing the human problems alluded to in his own (and indeed most of the other) chapters. Should this take place the UFO evidence would consist of "photographs of luminous patches of light, electromagnetic alterations, and/or other localized but not particularly impressive physical manifestations." He concludes his chapter by saying, "Perhaps the UFO dilemma will be solved only when some extraterrestrial beings are system-

atically observed by the majority of the population. However, until that time comes, as in times before in the history of science, man's most reliable tool for describing and understanding the unknown portions of the environment are systematic procedures and measurements." I think that all of the present contributors would also agree with this statement.

In his Geometry, Relativity and the Fourth Dimension (1977), mathematician Rucker echoes much the same view: "As life becomes less adventurous in our industrialized society, many people try to find new paths into the unknown. Perhaps we are actually 4-D beings and our physical bodies are only a 3-D cross section of our full bodies, but it cannot be said that there is any convincing evidence of this. Convincing evidence would consist of some consistent and plausible extension of our present theory of physics that would assume the four-dimensionality of ordinary physical bodies and predict verifiable experimental results. As long as there is no good theory of astral bodies, psychic phenomena and so on, no experiment can be really convincing" (p41). While one might argue whether there are any good theories of paranormal processes, there are interesting developments by investigators who are attempting to integrate these processes into existing laws of physics (e.g., Puthoff & Targ 1977). Still, the question remains whether to try to integrate so-called paranormal phenomena into the existing mainstream of scientific disciplines or whether to treat it quite separately at the outset, as a new discipline in its own right (even if such an approach might mean some ostracism by the scientific establishment). The second approach seems to have been the predominant one to date.

The last chapter (10) in Part III is by Roger N. Shepard, professor of psychology at Stanford University. He has titled his contribution "Reconstruction of Witnesses' Experiences of Anomalous Phenomena." Beginning with a comprehensive review of the literature, Dr. Shepard lays the groundwork for a methodology that field investigators can use to obtain insights about patterns hidden in large arrays of data. Those persons interested in studying unidentified aerial phenomena (usually) find little or no discernible pattern to the occurrences, either in space or time. Nevertheless, while "these circumstances do make scientific study enormously more difficult, they do not render it impossible." Using this statement as his starting point, Dr. Shepard outlines a procedure that is based upon visual recognition of the shape and other visual details of an aerial phenomenon rather than

upon a verbal description. * The author remarks that "most witnesses are not able to produce a likeness of what they saw that will even begin to engage their own latent capability for a positive recognition response." The procedure suggested here is that of providing the witness with systematically organized recognition arrays something like those used by police artists to reconstruct facial (or other) features of a suspect.

Part IV has to do with selected UFO research data and theory and contains three chapters. While Chapter 11 approaches the UFO experience from an in-depth (inductive), analytical methodology--by reporting a close encounter of the third type in great detail--the twelfth chapter takes a more statistical, global (deductive) approach. The final chapter offers a challenging theoretical possibility subject to actual measurement and validation.

Chapter 11 is entitled "Investigation of the Alleged UFO Experience of Carl Higdon" and is by R. Leo Sprinkle, director of counseling and testing and associate professor of psychology, University of Wyoming. Dr. Sprinkle's chapter presents a detailed account of a close encounter of the third type (Hynek 1972) which occurred on October 25, 1974, south of Rawlins, Wyoming. The chapter is intended to illustrate some currently used methods of field investigation into UFO-related phenomena. It also makes clear just how broad is the range of human experiences associated with UFO phenomena. Briefly, Carl Higdon claimed that while he was hunting elk he fired his rifle and noticed, to his amazement, that the bullet traveled only fifty or sixty feet before falling to the ground, "splattered." Upon picking the bullet up he claimed that he encountered a "strange person," who asked him if he wished to go with him. Later, Carl was found in a dazed and confused condition and was hospitalized for a few days. During hypnotic regression sessions, he obtained impressions of the two hours of amnesia, allegedly that period of time he was with the strange person or "visitor" and taken into a "cubicle" for a journey to a "space tower." After this alleged journey, Mr. Higdon indicated that he was returned to the forest where he had been hunting. The chapter provides the results of the investigation, including typescripts of hypnotic regression interviews, profiles of psychological inven-

*The editor has also, independently, pursued a somewhat similar approach (Haines 1976).

tories, statement of psychiatric evaluation, psychic impressions, polygraph examinations, photographs of the bullet, sketches of the "cubicle," and descriptions of subsequent experiences of Mr. Higdon. Dr. Sprinkle also offers some tentative conclusions of his own based upon these data and comparison with experiences of other UFO observers.

Experimental results from several specially prepared shape drawing tests are presented in Chapter 12 by Richard F. Haines, research scientist and consultant to the Center for UFO Studies, Evanston, Illinois, and to the Aerial Phenomena Research Organization, Tucson, Arizona. The chapter is entitled "What Do UFO Drawings by Alleged Eyewitnesses and Non-Eyewitnesses Have in Common?" and illustrates how simple UFO sketches can be influenced by various biasing factors (including prior exposure to an illustrated lecture on UFOs; brief exposure of ambiguous shapes; and prolonged exposure to a highly detailed UFO drawing). Other data presented include statistical results from administering a UFO shape drawing test to groups of alleged eyewitnesses of UFOs and to groups of people who claim they have never seen a UFO. The close similarity between the two groups' drawings suggests that almost everyone has seen some type of UFO representation (real or artificially drawn or photographed) which has introduced into our collective subconscious a "proto-symbol" of the idea "unidentified flying object" or "flying saucer." The results presented here further emphasize the importance of obtaining a detailed UFO shape drawing by the eyewitness under proper supervision by a trained investigator rather than obtaining only a verbal or written description of the phenomenon experienced.

It is very important to have some type of theoretical framework available when working on a scientific endeavor, particularly an endeavor as complex and little known as is presented by UFOs. In Chapter 13 Michael A. Persinger presents such a theoretical framework within which some types of UFO sightings may be explained. He has entitled his submission "Possible Infrequent Geophysical Sources of Close UFO Encounters: Expected Physical and Behavioral-Biological Effects." He suggests that presently unknown geophysical processes "applied in unusual space-time geometries are responsible for electromagnetic phenomena that have direct physical and biological consequences. These processes involve normal alterations in tectonic (structural) stresses within the earth's crust and are mediated by piezoelectric-like effects."

This chapter will likely prove to be one of the more controversial in this book, since it attempts to explain many features of the UFO experience in terms of physical and biophysical results of intense electromagnetic (EM) forces generated within the earth's crust. This naturalistic explanation may not find many supporters within the ranks of students of UFOlogy (for a number of reasons) nor among the ranks of certain physical scientists (for an entirely different set of reasons). Nevertheless, the EM column theory does raise some testable questions. Such testable questions are sorely needed in this as in all fields of science to help penetrate to new depths of the unknown. While some may consider Persinger's EM column theory to be too speculative, the editor felt that its potential contribution to UFO understanding was sufficient to permit its inclusion. Open-minded readers must be willing to consider every alternative explanation consistent with the available evidence.

A final subject remains before we turn to the interesting chapters to follow. It has to do with the use of consistent terminology. It is well known to the scientifically-trained person that one of the cornerstones of a sound scientific methodology is the development and use of a precise, consistent, and broadly-accepted vocabulary. UFO literature has been present for more than thirty years (see Catoe 1969); there is already an established, semi-specialized vocabulary in use. Interested readers may want to read works by Condon (1968), Hynek (1972), Jacobs (1975), Vallee and Vallee (1966), and the references listed in these books, for a sampling of this vocabulary. Terms such as angel hair, contactee, orthoteny, Foo-fighters, daylight discs, UFOnaut, and others may be only strange-sounding nonsense to most people, but to the initiated they stand for fairly definite ideas. In a chapter entitled "Psychology and Epistemology of UFO Interpretations," Douglass R. Price-Williams (Sagan & Page 1973) comments in regard to UFO-related terminology, "My theme is that distinctions must be made between description, definition, and explanation. Failure to respect these distinctions frequently leads to lack of clarity in discussing the reports, and often to logical mistakes" (p224). Although I have not tried to find out whether each of the other contributors to the book would support this statement, I believe they would. A serious attempt has been made in editing these chapters to keep description separate from definition and definition separate from explanation. Hopefully, the reader will come to agree that this goal has been achieved.

In keeping with prior usage (Haines 1979), the following definition of the term "unidentified flying object" is used here:

> Manifestations of the UFO phenomenon are found among reports of the perception or indirect awareness of an object, light source, or presence of something in the sky, upon the land, or on or beneath the surface of a body of water, the appearance, trajectory, and general dynamic, luminescent, or reflective qualities of which do not suggest an explanation that conforms with current conventional or logical explanations and which remains unidentified after all evidence surrounding the sighting has been studied by technically capable persons including the field investigator involved in the case and who have applied both commonsense identification as well as intuition to their analysis.

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SOCIAL AND CULTURAL FACTORS INFLUENCING BELIEFS ABOUT UFOs

Phillis Fox

Robert L. Hall (1972) wrote:

> Most behavioral scientists would agree that reports as persistent and patterned as UFO reports must be systematically motivated in some way, not simply random misperceptions. Either there must be a distinctive physical phenomenon which these witnesses have observed, or there must be a powerful and poorly understood motivation rooted in projection, or contagion of belief, or a similar mechanism [p29].

Leaving the investigation of the possibility of a distinctive physical phenomenon to the natural scientists, what might a "powerful and poorly understood motivation" consist of? We know that human beings do not observe events the way a camera does. To a considerable extent, people see what they expect to see; and what they expect to see is not simply a result of their personalities but also the result of their social and cultural milieu. If social and cultural factors do influence the interpretations of UFOs made by witnesses, then those same factors are likely to influence the beliefs non-witnesses have about the nature of UFOs.

This essay reports the author's exploratory research on the reasons why people, both those who have seen UFOs and those who have not, believe that at least some UFOs are extraterrestrial spaceships. On the basis of informal interviews with believers and non-believers, extensive reading in the popular and social science literature on UFOs, and observations at lectures, a list of variables that seemed to affect belief in flying saucers was compiled. These variables fell into three groups--one of which had to do with open-mindedness, a second with social class and experiences of the social order, and the third with larger belief systems which subsume and support belief in flying saucers. These

variables were then used to prepare a questionnaire administered in January 1975 to a nonrandom sample of 95 people living in an agricultural area of California. Analysis of the questionnaire's results indicated that some of the variables did affect beliefs about the nature of UFOs, while the operational definitions of other variables were inadequate. Two revised versions of the 1975 questionnaire were prepared and administered in January 1976 to two nonrandom samples of 101 and 170 persons, all living in the same area as the 1975 sample. The results of these questionnaires will be referred to by the dates on which the questionnaires were administered. While the findings have a fair amount of validity for the people studied, they do not necessarily predict the responses of other people because the people questioned were not selected randomly and cannot be assumed to be representative of the rest of the population.

During the exploratory research three theories were formulated about why people believe in flying saucers. One theory was psychological in its perspective; another, social-psychological; and a third, cultural. Only the cultural theory had much success accounting for the data. The psychological theory used as its principal independent variable a personality trait, open-mindedness. Using Rokeach's (1960) theory of dogmatism, several hypotheses were derived:

(a) Open-minded people will evaluate information about UFOs in terms of the content of the material, but close-minded people will believe only information from sources they view in positive terms. Thus, if a positive source says that UFOs are really visitors from outer space, the close-minded person will also. However, if a positive source says that they are not, then the close-minded person will also believe they are not.

(b) In the absence of information from any authorities, people with closed belief systems are less likely to believe that UFOs are visitors from outer space than people with open belief systems because the former are less able to entertain new ideas--provided both groups have had little past experience with the idea of flying saucers.

(c) Because close-minded people tend to evaluate other people in terms of the similarities of the belief systems of those others to their own, people with closed belief systems are likely to associate only with others who

agree with them. Thus, people with closed belief systems who do not think that UFOs are alien spacecraft will associate with people who think the same thing. People with closed belief systems who believe in flying saucers will associate with people who think likewise. In contrast, people with open belief systems will associate with people whose interpretations of UFOs differ from theirs as well as with people whose interpretations agree.

Unfortunately, although they might be true for other samples, very few of the predictions made by these hypotheses were supported by the data collected in the exploratory research.

A second theory was social-psychological in nature, an elaboration of Warren's (1970) research on status inconsistency. According to the basic theory, status-inconsistent people (such as people with high educations and low incomes) suffer more stress than status-consistent people (such as people with corresponding educational and income ranks) and thus tend to retreat or withdraw from the larger society by espousing beliefs which suggest the possibility of other lives on other planets.

This basic theory needs to take into account certain problems. First, not all status-inconsistent people will experience their inconsistency in the same way (Knoke 1972, Nelson 1973). Majority- and minority-group members may react differently to their inconsistent statuses. Given the strength of various civil-rights movements, females and nonwhites may channel their stress into political activities rather than escapist beliefs. Also, people's reactions to their inconsistent statuses may vary with the nature of those inconsistencies. For example, people with educations superior to their occupations may not experience stress because they are striving for the upward mobility they think their educations will guarantee them (Jackson 1962).

Second, if sighting UFOs and believing that they are alien spaceships represent a rejection of the social order, then people under stress should also be interested in other unusual phenomena. Beliefs in the supernatural, ESP, possession by the devil, and such also deny the taken-for-granted order.

Third, status inconsistency may be only an apparent

predictor of stress. Logically, the independent effects of any of its components--education, income, occupation--could be the true cause of stress.

Although further research might confirm Warren's theory, the 1975 and 1976 studies conducted by the author produced virtually no support of the basic status-inconsistency theory or its suggested revisions.

The third theory formulated during the exploratory research was sociological in nature, focusing on cultural belief systems and social interaction. Although in need of additional testing, this theory is supported by the author's data to a greater extent than either the psychological or social-psychological models. According to this theory, belief in flying saucers is consistent with the United States world view and has emerged as a collective attempt to understand ambiguous and problematic stimuli. In retrospect, perhaps the inadequacy of the psychological and social-psychological explanations should not be surprising. While personality traits such as open-mindedness or mental states such as stress can be very effective in accounting for the behavior of small numbers of isolated individuals, they are less useful in accounting for the behavior of large numbers of people over long periods of time. That is, belief in flying saucers is so persistent and so widespread it must be cultural. People have believed in flying saucers at least since the early 1950s. In the three nonrandom samples surveyed by the author, 55, 41 and 46 per cent of the people questioned thought that at least some UFOs were extraterrestrial spaceships.

The sociological theory, therefore, is the main topic of this chapter.

Cultural Beliefs Which Permit Belief in Flying Saucers

Each of us is born into a world-taken-for-granted, a system of apparently self-evident and self-validating assumptions about the world that our society has engendered in the course of its history. * Our society supplies our values, our

*One might ask if there is a relationship between Dr. Cahn's suggestion that nature is but a creation of our awareness and Dr. Fox's that we are born into a system of apparently self-evident, self-validating assumptions about the world around us. To what extent does our society condition our awareness of our society and ourselves?--editor's note.

logic, our store of information, and our store of misinformation. Our world view tells us what is possible and what is not possible. Of course, a society's world view is not static, nor is it shared by all people in the society. We do not simply acquire our society's world view, but we also maintain, create, and alter it as well.

At this point in our history, the taken-for-granted world of most Americans encourages us to interpret UFO reports as flying saucers. We assume that intelligent life exists elsewhere in the universe and that interstellar space travel is both possible and desirable. Most of us know little about astronomy and perceptual psychology. Accepting of change both in our personal belief systems and in official, scientific ones, we find it easy to believe something we had not previously believed. We may be members of subcultures which attach special significance to UFOs.

In order to conclude that a UFO is an alien spaceship, people must believe that aliens exist who can build and fly spaceships. The existence of intelligent extraterrestrials is taken for granted by large numbers of Americans. A 1968 survey of randomly-selected adults found that 70 per cent believed that intelligent life-forms exist elsewhere in the universe (Lee 1969, p232). According to a 1973 Gallup poll, 46 per cent of Americans held this belief (Fifty-one per cent ... 1973). Of the 95-person sample questioned in 1975, 60 per cent agreed that there were intelligent beings on other planets. Such a belief seems easy to acquire. Like much science fiction literature, television programs such as Star Trek and Space: 1999 are based on the assumption that the universe is teeming with intelligent life. The scientific establishment supports this idea. Expecting Pioneer 10 to leave our solar system, NASA had it engraved with pictures of humans, the solar system, and atomic structures in case the probe should be intercepted by extraterrestrials. More recently, Viking I landed on Mars and began to search for life there. In connection with the Viking mission, Carl Sagan said on the program "CBS Evening News with Dan Rather" (June 20, 1976) that if we found life on Mars our discovery would open up the possibility of finding life elsewhere in the universe.

When asked why they think UFOs are alien spaceships, some people reply simply that they are certain we are not the only intelligent life in the universe. They assume that extraterrestrials not only exist, but also want to travel through

space and have developed an appropriate technology. Many, if not most, Americans make these assumptions. As supporting evidence for our belief that interstellar space travel is possible, we can point to the rapid progress made by our own space program with its live television pictures from the moon, Skylab endurance records, and photographs of Mars. As for the desirability of space travel, in the 1975 sample, 78 per cent of the 95 people questioned thought that many parts of our space program were worthwhile. In addition to the space program, much science fiction exposes people to the possibility and desirability of space travel. In the 1975 sample, 77 per cent said they had seen movies about space travel, while 42 per cent said they had read science-fiction stories about space travel.

Interpreting UFOs as flying saucers is made possible by what we do not know, as well as by what we think we know. Because our world view contains little information about astronomy and perceptual psychology, it does not provide us with the knowledge necessary to interpret UFOs as stars, parhelions, optical illusions, and such (Haines 1979). In his discussion of critical ability, Shibutani (1966) writes:

> Education may become a crucial variable in some situations in that it provides a better basis for judgment. When confronted with reports of an invasion from Mars or a phantom anesthetist, a better understanding of astronomy, chemistry, and popular psychiatry renders comprehensible things that remain strange to the uneducated [p123].

Although we glance skyward to check the weather and to admire the moon, most of us are uneducated about astronomy. Of the 95 people in the 1975 sample, 62 per cent said they had little knowledge of astronomy, while 29 and 8 per cent reported medium and high amounts respectively. What little most of us may know about astronomy has not been learned from experts (astronomers) but rather from friends and family, brief experiences in elementary and secondary school, and the mass media. On the 1976 questionnaire administered to 170 people, respondents were asked to identify what they had read about UFOs. Of the 57 people who could, 32 per cent had read Chariots of the Gods, 37 per cent had read newspaper or magazine articles, but only 4 per cent had read books by astronomers.

Yet another aspect of our world view is an acceptance of change. We have a sense that what we now think to be true may be altered in the future. This lack of permanence is reflected in our life styles and in our attitudes toward our scientific knowledge. The ability of contemporary Americans to change belief systems has been noted by a number of observers. Berger (1963) says that our age is one of conversion:

> An individual may alternate back and forth between logically contradictory meaning systems. Each time the meaning system he enters provides him with an interpretation of his existence and of his world, including in this interpretation an explanation of the meaning system he has abandoned [pp51-2].

Borhek and Curtis (1975, p143) refer to these changes as voluntarism, which they consider to be one of the main characteristics of contemporary belief systems. Lifton (1972, pp387-8) coins the term protean man to label the style of self-process in which people constantly change their identities. According to Lifton, this style of self-process is partly the result of losing connection with our own cultural symbols and partly the result of the flooding of imagery via the mass media which allows us to be touched by everything and which overwhelms us with superficial messages and partial alternatives.

Not only our personal meaning systems change, however, but also our scientific meaning systems. While Americans have great faith in science, or at least in technology, we do not believe that our science has uncovered all there is to know about the universe. Most of us are aware that our stock of scientific knowledge is changing and expanding. Consequently, although it does not now include knowledge of extraterrestrial visitors, it may someday. In the meantime, it is possible for people to experience events or phenomena that are unknown or strange. When confronted with something strange, people may find it easy to cease disbelieving in flying saucers and to begin believing in them because they are used to changing belief systems completely and rapidly. Indeed, some UFO witnesses have said that they previously regarded UFO reports as hoaxes or nonsense.

Thus far our discussion of beliefs which support a belief in flying saucers has focused on cultural beliefs held by

a majority of Americans. Not all people in this society share those beliefs, however. Particularly noteworthy in this context are two subcultures: fundamentalist religions and the metaphysical subculture. Either of these two subcultures may serve as a reference group or socializing agent and hence may influence interpretations of UFOs. Not convinced that intelligent life exists elsewhere in the universe, some fundamentalist sects interpret UFOs as angels from God or Satan. In the 1975 sample one respondent, who simply identified herself as a Christian, wrote, "According to some Christian authorities, UFOs are from Satan. 99.9 per cent sure."* In addition to the traditional Christian reality there exists an alternative religious reality, an occult social world, which makes entirely different assumptions about the nature of the universe (Ellwood 1973). As Buckner (1968) writes:

> The social world of the occult 'seeker' is a very unusual one. The seeker moves in a world populated by astral spirits, cosmic truths, astrologers, mystery schools, lost continents, magic healing, human auras, second comings, telepathy, and vibrations [p226].

The seekers who composed the Human Individual Metamorphosis cult saw flying saucers as vehicles by which they could escape the cycle of death and reincarnation and ascend to the Kingdom of Heaven (Balch & Taylor 1976). In short, members of the metaphysical subculture and fundamentalist sects tend to make assumptions about the universe different from those made by most Americans and they tend to interpret UFOs differently also.

Pointing out that in many UFO cases witnesses had not previously taken UFO reports seriously, Hall (1972) concludes that these people really saw unusual phenomena:

> In fact I would find it puzzling and behaviorally anomalous if witnesses to a dramatic, ambiguous event promptly interpreted it in a way that lay outside their previous beliefs and contrary to the beliefs of others around them unless, indeed, their observations seemed quite unequivocal [p216].

*Or course it is unwarranted to conclude that this belief is shared by all or even a majority of Christians. --editor's note.

But are flying saucers outside the belief systems of most Americans? No, our store of information, our assumptions, and our store of misinformation make it very easy to conclude that UFOs are extraterrestrial spaceships. Most of us are convinced that intelligent life exists elsewhere in the universe. We assume that space travel outside our solar system is possible, and we take for granted the idea that intelligent alien life-forms want to travel through space. When we look at the sky, we see many things which are strange to us because we are ignorant of astronomy and because of the perceptual limitations of our eyes. Knowing little about astronomy or perceptual psychology, we cannot use either body of knowledge to explain what we see. Quite familiar with the idea of space travel and alien visitors, however, we find the extraterrestrial hypothesis an easy way of accounting for our observations--even if we have not previously prescribed to it. In short, from a sociological point of view, belief in flying saucers is apparently becoming a well-established part of U. S. culture. If things continue as they have for the past twenty years, future social scientists may no longer ask why people believe in flying saucers, but rather why they do not.

Social Interaction Which Supports a Belief in Flying Saucers

Not only do people learn cultural meanings, but also they maintain and transform those meanings. Face-to-face interaction both supports and modifies the subjective realities of the participants. In Berger's (1963, p118) words, reality is socially constructed. Setting aside the question of whether or not flying saucers are an objective reality, they are at least subjective realities for many people. How have these subjective realities emerged?

The process by which people conclude a UFO is an alien spaceship can be described as a type of collective behavior similar to the transmission of rumors. A rumor is defined as a recurrent form of communication through which people caught together in an ambiguous situation attempt to construct a meaningful interpretation of it by pooling their intellectual resources (Shibutani 1966, p17). A rumor is not so much the dissemination of a message as the process of forming a definition of the situation. In this case, the situation to be defined is a UFO sighting. People must decide what happened: Was something truly strange observed and if so what might it have been?

The social-science literature on rumor shows a number of factors that seem to be important in the emergence of beliefs. First, the people involved must perceive a situation as mysterious and significant. According to Allport and Postman (1947, p33) the basic law of rumor transmission states that the amount of rumor in circulation will vary with the importance of the subject to the individuals concerned multiplied by the ambiguity of the evidence pertaining to the subject. If either importance or ambiguity are absent, rumors will not be constructed. Both are present in the case of UFO sightings. Considering how little most people know about astronomy and perceptual psychology, they frequently see things which they cannot identify. Their eyewitness reports suffer from the uncertainties and inaccuracies that plague all such reports. While some people may consider it important to make contact with extraterrestrials in order to insure peaceful and mutually beneficial relations, others may be fearful. After all, some witnesses report being kidnapped and physically examined.

A second factor crucial in contagion (i.e., the transmittability of rumor) is the lack of a satisfactory (or, convincing) explanation by experts as to the real nature of the phenomenon or event. In the case of UFO sightings, the experts are often considered to be natural and social scientists or public officials who might be able to identify the UFO correctly. But people rarely have access to such experts; most people do not attempt to report their observations to any official agency (Lee 1969, p226). If they do, they may have difficulty finding one willing to listen. The Air Force no longer investigates UFOs. Local police departments may be uninterested, sometimes assuming that anyone who sees a UFO must be drunk. Although organizations like APRO, CUFOS, NICAP, and MUFON* would be interested, they do not have phone numbers in most telephone books. In rare cases UFO sighters may have their reports investigated by experts, but in most instances they have only other lay people to help them interpret their experiences.

In the absence of official explanations, people begin to improvise their own. Except under intense excitement, these explanations are limited by considerations of plausibility, and

*Aerial Phenomena Research Organization; Center for UFO Studies; National Investigations Committee on Aerial Phenomena; Mutual UFO Network.

what is perceived as plausible depends upon what is previously taken for granted. In other words, the social construction of reality is generally circumscribed by the culture of the group (Shibutani 1966, p128). Not only do many aspects of our taken-for-granted world support a belief in flying saucers, as discussed, but our trust in the media also supports this belief. Of the 95 people questioned in 1975 as part of the exploratory research reported in this chapter, 84 per cent had seen television news coverage of UFO reports, while 67 per cent had read books or articles about UFOs. Of those who had been exposed to information about UFOs, 91 per cent considered the television coverage essentially factual and accurate, and 83 per cent made the same evaluation of their reading. In the 170-person 1976 sample, 68 per cent had read about UFOs, with the vast majority of these 68 per cent considering the material factual and accurate. Although only 31 per cent could remember titles of what they had read, almost all of them (94 per cent) had read material which espoused the extraterrestrial hypothesis as an explanation of UFOs.

People construct explanations of unusual events through the conversations they have with each other. We depend upon each other for help in placing anomalous experiences in their proper perspective. Thus, an interpretation of a UFO as a flying saucer is not so much an individual decision as a collective one made through the collaboration of many people. In general, the more people who support a particular interpretation, the more compelling the interpretation, although not all people's opinions have equal weight. The contribution made by each person varies with his or her involvement in the situation and his or her relationship with the other participants. Whether or not we accept ideas or information from other people depends upon our evaluation of their trustworthiness and competence. Especially trustworthy in our eyes and therefore especially influential are significant others, people with whom we interact most frequently and with whom we have important emotional relationships. In the 1975 sample, 64 per cent of the 56 people who had friends who believed in flying saucers also believed, while 59 per cent of the 39 people who either had friends who did not believe or did not know their friends' opinions did not themselves believe in flying saucers. In the 1976 sample, 56 per cent of the 82 people who had friends who believed that the earth was being visited by extraterrestrials believed the same thing, but 63 per cent of the 87 people who either did not know their friends' opinions or had nonbelieving friends were nonbelievers.

Other potentially influential people are ones whom we consider to be experts or insiders, people whose competence we do not question. Someone who claims to have seen a UFO or to be closely acquainted with a sighter may do much to shape our interpretation of UFOs. Of all the people with inside information, the most influential may be UFO investigators from organizations such as APRO, CUFOS, NICAP, and MUFON, to mention but a few. However careful these investigators are to behave in a neutral fashion, their very presence lends credence to the reality of a flying saucer sighting. People may conclude there must be something to the stories going around, if they know those stories are being investigated seriously.

Even though people are not significant others nor insiders, under certain circumstances they may have great influence on an individual's interpretation of a UFO sighting. Not only are people especially sensitive to the opinions of others when the objective reality of a situation is in dispute (Sherif & Harvey 1952); but also people can be swayed when the objective reality is quite clear, provided they are confronted with a sufficiently large number of people who are unanimous in their views (Asch 1965). As Shibutani (1966) states:

> Mere reiteration may lead some of the doubtful to reconsider, for hearing the same report from several sources tends to weaken skepticism. Unless one has built up special resistance, knowledge that others are taking an account seriously makes it difficult to dismiss [pp140-1].

Whomever we talk to, the words we use will shape our beliefs. A number of UFO researchers have pointed out the inherent biases in the terms unidentified flying object and flying saucer (Price-Williams 1972, p224). Nonetheless these phrases are used, and they no doubt direct thinking along certain lines and not others. Research by Loftus and her associates (1974, 1975) indicates how crucial such words can be in constructing a witness's memory of an event. They find that two kinds of information go into an individual's memory of a complex occurrence. The first is information gleaned during the perception of the original event, while the second is external information supplied after the fact. Over time, information from these two sources becomes integrated in such a way that the source of any specific detail cannot be identified reliably. All we have is one memory. Thus,

Loftus finds that not only does the phrasing of a question about an event affect a witness's perception of the event shortly after it has occurred, but also the phrasing has altered the witness's memory of the event a week later. Applying this finding to UFO sightings, loaded questions from friends and acquaintances may alter a witness's memory of his or her observations. If people ask, did you see a flying saucer?, a witness may reconstruct a memory with the appropriate details.

Once people begin to subscribe to a particular interpretation of UFOs, they seek supporting evidence in the past and the present (Shibutani 1966, p84). Previously dismissed as insignificant, temporarily forgotten events are recalled and reinterpreted in terms of the current theory (Berger 1963, Kitsuse 1964). This reconstruction of the past is exemplified by cases of UFO witnesses who do not report their observations until they read or hear about the observations of others. Investigators may find it impossible to tell if these witnesses actually saw a cylinder-shaped object with flashing red lights or simply saw something which they later interpreted to be a cylinder-shaped object with flashing red lights. These witnesses are not lying; like all people, their original observations and their subsequent interpretations of it become inseparable parts of their memories.

People reconstruct not only the past in terms of their current theories but also the present. Sensitized to occurrences we believe are relevant to testing our hunches, we may misinterpret current events that are really quite unrelated to our developing orientation (Shibutani 1966, p84). Aware that people have reported saucer-like objects in the area, we may make a similar interpretation of a stimulus we would ordinarily ignore. The mass media play an important role in making interpretations current and thus play an important role in this classic sort of contagion. Research by Johnson (1969) and Medalia and Larsen (1969) as well as the exploratory research discussed in this chapter, shows that newspapers do a great deal to promote socially constructed realities such as phantom anesthetists, windshield pitting, and flying saucers.

Implications for the Investigation of UFO Sightings

Because UFO reports are eyewitness reports, they are not identical with objective reality. This lack of one-to-one

correspondence between a stimulus and its report can be explained in a number of ways. Some of the chapters in this book advance explanations in terms of the limitations of the human senses. Other works attempt to account for UFO reports in terms of the personal characteristics or alienated social positions of the sighters.

The explanation presented in this chapter (of the taken-for-granted world and the social construction of reality) has implications for the investigation of UFO sightings, suggesting data which should be gathered to assess the extent to which social and cultural factors have influenced the interpretation of a particular UFO report. Following is a list of the variables which, at this stage of the author's research, seem to be the best predictors of belief in flying saucers. Because it has yet to be tested using a representative sample, this list of variables is tentative. Note that the variables do not predict who will see a UFO; the author's research indicates that anyone can. Not all sighters interpret UFOs as alien spaceships, however, nor do all who merely hear about UFOs. Presumably the process of interpreting UFOs is similar for both witnesses and non-witnesses, although this assumption has not been examined empirically, because of the small number of sighters in the exploratory samples. This process of interpretation, particularly its social and cultural dimensions, should be the topic of further research.

Collecting Data on Cultural Factors

Some aspects of American culture make the presence of extraterrestrial visitors very plausible. To the extent individuals have internalized these aspects, they are predisposed to believe in flying saucers and thus predisposed to interpret UFOs as flying saucers. Whether or not individuals actually make such an interpretation depends upon their social situation (these variables are covered under the next subheading).

In the author's exploratory research, belief in flying saucers was measured by the checked-off answers to the multiple-choice question, "What do you think unidentified flying objects really are? (Circle as many as apply.) A hoaxes; B visitors from outer space; C secret military projects; D natural events and objects such as airplanes, meteors, and weather balloons; E other (please state)." People who indicated that at least some UFOs are visitors from outer space

Table 1. CULTURAL PREDICTORS OF BELIEF IN FLYING SAUCERS

Independent Variable and Operational Definition	Ability to Predict Belief in Flying Saucers*
Belief in intelligent extraterrestrial life, as measured by:	
Agreement with the statement that there are intelligent life forms on other planets in the universe	.56
Attitude towards space travel, as measured by:	
The extent to which the U. S. program is perceived as worthwhile	.05
Exposure to science-fiction movies on space travel	.14
Exposure to science-fiction literature on space travel	.10
Knowledge of astronomy, as measured by:	
Subjective measurement of amount of astronomical knowledge	.07
Membership in a relevant subculture, as measured by:	
Religion (Catholic, Protestant, nonbeliever, other)	.21
Number of nontraditional areas in which respondent has read (transcendental meditation, yoga, health food or vegetarian diets, reincarnation, Bermuda triangle, ESP, the supernatural, Eastern philosophies or religion)	.12

*The measures of association reported here are all asymmetrical versions of Guttman's coefficient of predictability, a statistic designed for use on nominal level data. This measure of association ranges in value from 0 to +1.00 and is interpreted as the proportionate reduction of error in guessing the dependent variable as a result of taking into account the independent variable. For example, the first statistic in the table is .56. It means that 56 per cent of our errors in guessing beliefs about flying saucers are eliminated if we take into account belief in the existence of intelligent life elsewhere.

were classified as believing in flying saucers, while all others were considered nonbelievers. Table 1 summarizes the independent, cultural variables, their operational definitions, and their ability to predict belief in flying saucers as measured by the asymmetrical version of Guttman's coefficient of predictability.

One aspect of United States culture which supports a belief in flying saucers is belief in the existence of intelligent life elsewhere in the universe. Table 1 shows that, of all the cultural, independent variables, it was the best predictor of belief in flying saucers.

A second important aspect of the taken-for-granted world of most Americans is the belief in the feasibility and desirability of space travel. Belief in the feasibility of space travel was measured indirectly by assessing whether or not respondents had seen movies or read science fiction on the topic. As Table 1 shows, neither of these two indirect measures was a good predictor of belief in flying saucers. Although perhaps they could be improved by asking additional questions to assess how much science fiction respondents had read or how much they enjoyed science fiction, these measures suffer from conceptual difficulties because an interest in science fiction about space travel does not clearly precede belief in flying saucers. For example, in the 1975 sample, a belief in flying saucers was a slightly better predictor of exposure to science fiction about space travel than the other way around. A better way of measuring belief in the feasibility of space travel is with direct questions which ask respondents to agree or disagree with statements such as, "One day it will be easy for us to travel to the stars." The desirability of space travel was measured by asking people how worthwhile they considered the United States space program. Probably too general in nature, this question was a poor predictor of beliefs in flying saucers and might have been improved if it asked specifically about the manned spaceflight aspects of the U. S. space program in distinction to unmanned missions. For instance, respondents might be asked the extent to which they agreed or disagreed with the statement, "The exploration of space by manned spaceflight is a worthwhile goal."

The third aspect of the American world view which supports a belief in flying saucers is the widespread lack of information about astronomy and perceptual psychology. When confronted with strange things in the sky, most people cannot

use the principles of astronomy and perceptual psychology to account for what they see. Knowledge of astronomy was measured by asking people to assess their own knowledge but the variable was not a good predictor of belief in flying saucers as shown by Table 1. The low predictive power of knowledge of astronomy may mean that people's beliefs are unrelated to their knowledge, or it may simply be the result of a poorly-worded question. Better questions might be ones about knowledge of specific astronomical phenomena and optical illusions that could be mistaken for spaceships. For example, respondents could be asked to disagree or agree with the statement. "It is very difficult to judge the speed of a bright light moving against a dark background." Just how much an individual knows about these potential sources of error is especially important if that individual has seen something he or she considers to be a flying saucer. We want to be able to determine if the witness has sufficient knowledge to fit the stimulus into an explanation other than an extraterrestrial one.

The fourth aspect of the American world view is our acceptance of change in both our personal and our scientific belief systems. Because they were not considered relevant at the time, neither type of acceptance was measured in the exploratory research, and thus neither is listed in Table 1. However, respondents should be asked the extent to which they agree or disagree with statements such as:

> It is perfectly reasonable for someone to convert from one religion to another.
>
> Only someone who was crazy would completely change his or her philosophy of life.
>
> Scientists know all there is to know about the nature of the universe.
>
> When and if we explore outer space, we will discover things we never dreamed of.

The fifth aspect of the American world view which may affect beliefs about UFOs is membership in religious subcultures. For a variety of reasons, fundamentalist denominations tend not to interpret UFOs as alien spaceships, while occult philosophies tend to accept extraterrestrial visitors as proven facts. As Table 1 shows, religious denomination predicted belief in flying saucers to some extent; not shown is that Protestants tended toward such beliefs the least. Because many subjects simply identified themselves as Protestants,

they could not be classified as fundamentalist or not. However, given the fact that the sample was selected from an agricultural area, it could be expected to be conservative in terms of religion. Future research should seek the specific denomination to which a respondent belongs. Interest in the metaphysical subculture was measured by the number of non-traditional areas in which a respondent had read (see Table), which turned out not to be a very good predictor of belief in flying saucers. A better measure might be one which assesses the depth, and breadth, of interest in those areas, and inquires about attendance at UFO lectures and workshops.

Suggestions for Collecting Data on Social Factors

The process by which people collectively arrive at beliefs about the nature of UFOs is conceptualized as being similar to the process of rumor transmission discussed above; both may be considered attempts to define an ambiguous situation. There are three social conditions crucial to the transmission of rumor and each can be measured. To the extent these conditions pertain, social interaction is likely to produce belief in flying saucers.

One condition crucial to rumor transmission is the perceived nature of the stimulus: it must be both ambiguous and important. Although ambiguity was not measured in the exploratory research, it could be measured by asking respondents to agree or disagree with statements such as those used by Lee (1969):

> The government has done a good job of examining UFO reports.
>
> There is no government secrecy about UFOs.
>
> UFO reports have not been taken seriously by any government agency.
>
> No airline pilots have seen UFOs.
>
> No authentic photographs have ever been taken of UFOs.
>
> Some UFO reports have come from astronomers.
>
> Some UFOs have landed and left marks on the ground [p222].

In addition to being uncertain about the nature of UFO evidence,

people also must perceive UFOs as important. Their opinions can be ascertained by asking them to agree or disagree with statements such as:

> The government should spend more money than it does now to study UFOs.
>
> Whatever they really are, UFOs are unimportant and can safely be ignored.

Although these statements are phrased so that any believer or nonbeliever can answer them, they could be reworded to apply to the specific UFO sighting under investigation.

The second factor conducive to the spread of rumors is the lack of any convincing, official explanations. From the standpoint of formulating a research methodology, then, local newspapers, television shows, and radio programs should be examined to see if they present statements by the experts. Residents should be asked if they are familiar with the official explanation of the sighting and if they believe it to be correct.

Of course, in the absence of official explanations, people tend to improvise their own, attempting through their conversations with each other to place an unusual event in its proper context. Thus, supportive social interaction is the third condition crucial to producing the conclusion that a UFO is a flying saucer.

As described in Table 2, the exploratory research asked each respondent to estimate approximately the number of their friends who believe in flying saucers and to state whether or not any of their friends have seen a UFO. The latter question was a poor predictor of the respondent's belief because only a very small proportion of respondents had friends who had seen UFOs. The number of friends who believed in flying saucers was also a weak predictor, but its power might be improved by assessing more precisely the closeness of the friends and the intensity of their interests. For example, people could be asked how many of their close friends and family believed in flying saucers, as well as how many of their casual acquaintances believed. Also they should be asked if any of their friends and acquaintances are deeply interested in flying saucers and if they discuss flying saucers frequently. When investigating particular sightings, much more specific data on who talked to whom, what was said, and the viewpoint of each person involved should be collected.

Table 2. SOCIAL PREDICTORS OF BELIEF IN FLYING SAUCERS

Independent Variable and Operational Definition	Ability to Predict Belief in Flying Saucers*
Social support from significant others, as measured by:	
Number of friends who believe in flying saucers	.16, .13†
Friends' sightings of UFOs	0
Currency of particular beliefs, as measured by:	
Exposure to television news coverage of UFO reports	.07
Perceived accuracy of television coverage	0
Reading of books and articles on UFOs	.26, .12
Perceived accuracy of reading	.23, .28

*See note to Table 1, on page 34.
†When a question appeared in both the 1975 and 1976 questionnaires, two measures of association were computed, one for each sample.

Ideally, conversations in which agreement emerges over the interpretation of a UFO should be audited in person.

Table 2 also shows that the first two measures were poor predictors of belief in flying saucers simply because the vast majority of respondents watched television news and considered it accurate. Reading and perceived accuracy of the reading material were considerably better predictors. Although one sample was also asked to list the titles of material which they considered good, 70 per cent of the 170 respondents either could not recall what they had read or gave titles so incomplete that the works could not be identified. These general questions can be reworded so that they inquire about knowledge of the details of a particular UFO sighting.

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THE ZEITGEIST OF THE UFO PHENOMENON

Armando Simón

To study the Zeitgeist (spirit of the times) of the UFO phenomenon is to study the subtler, overlooked aspects of the phenomenon. This involves stepping back for a better perspective to look over the beliefs and events that we have taken for granted. It is the kind of approach, for example, that points out the shift of emphasis from the science-fictional term "flying saucers" of the 1950s and early 1960s to the more respectable-sounding name "UFOs" preferred nowadays. It is the kind of approach that studies the increased respectability of the UFO phenomenon after the 1966 flap* and points to the increased number of "abduction" reports after the publication of the book, The Interrupted Journey. Likewise, it is the kind of approach that attempts to answer the question, why were flying saucers immediately interpreted as extraterrestrial crafts in 1947? But to me, what represents the model example of the effects of the Zeitgeist upon the UFO phenomenon are the numerous instances of reference to a moving light in the sky (a UFO) as "the craft" or "the ship" by the observer (Vallee 1965, Vallee & Vallee 1966), who is

*The increased interest taken in UFOs by such scientists as Carl Sagan, Philip Klass, and David Saunders occurred after the 1966 flap, and was probably due to a number of events. First, the Air Force washed its hands of UFOs, so scientists realized it was now up to them to investigate; second, explorations in space removed much of the fantasy from the idea of space travel and "brought it down to earth"; third, by the mid-60s, a generation had grown up on science-fiction films and as a consequence took the idea of aliens and space travel for granted (Saunders [1968] found that 93 per cent of college students believed in extraterrestrial intelligences); fourth, the prevalent atmosphere of scientific research may have facilitated an open-mindedness towards the subject; and fifth, the concept behind the Condon study legitimized the study of UFOs, while those scientists who disagreed with the conclusions investigated on their own.

assuming that inside the erratically moving, luminous object, there was an opaque, mechanical spacecraft. In other words, there is a great difference between an observation and an interpretation, the latter being under the influence of the cultural beliefs, the semantic traps, and the perceptual set that we call the Zeitgeist. UFOlogists should constantly keep this subtle difference in mind.

One could take the development of the UFO phenomenon, in all its various stages, as a report on the psychological state of the country: belief in UFOs as an invasion task force after WW II, the religious-pacifist schizophrenia of contactees during the atomic-bomb days, and suspicion of official censorship of UFO data shifting from an Air Force "conspiracy" during the 1950s to the notorious activities of the CIA during the 1970s.

I shall confine myself in this chapter to the effect of science-fiction films on the Zeitgeist and vice versa. I apply the term "science-fiction film" only to those films depicting either extraterrestrials visiting the Earth or mankind's exploration of space. This restriction effectively eliminates films with themes such as time-traveling, extraordinary inventions, etc.* The connection between science-fiction films and UFOs has seldom been made, mostly as a passing comment (Jacobs 1975). Few have hinted at a possible causal relationship with flying saucers (but see Menzel & Boyd 1963). However, Vallee (1965) flatly denied that the films had any influence whatsoever on UFO sightings:

> It may, or may not, be interesting to remark here that the 'dead' period of UFO activity has been one of the richest in science-fiction stories of all kinds, and has seen the growing interest of the motion-picture industry in fantastic and 'horror' tales which might have resulted in an increasing number of hoaxes and hallucinations, and even in UFO waves, if the 'psychological' theory of UFOs were correct. As early as 1916, Otto Ripert's film Homunculus

*Sources of information on the films mentioned here, aside from the author's experience, are mostly Annan (1974), Baxter (1974), Gifford (1971), Naha (1975), Rovin (1975), and Strick (1976). Annan approaches the films from a Jungian standpoint.

> was about the creation of an artificial man by a mad scientist. In 1914 and 1920 the German industry produced two films on the subject of the 'golem' (Paul Wegener and Henrik Galeen). In 1924 the film Orlac's Hands was made, after a novel by Maurice Renard. In 1926 Fritz Lang created Metropolis, and we should not forget that 1920 saw the introduction of the word 'robot,' with a play by Karel Capek, Rossum's Universal Robots (R. U. R.). In 1928, Fritz Lang did The Woman on the Moon (Die Frau im Mond). The first 'trip to the moon' had been made by the French pioneer Méliès in 1902, and the celebrated Frankenstein and John Carter of Mars were created during this period. If UFO sightings were motivated by some mechanism through which the public can release hidden fears and satisfy a need for fantastic or horrifying tales, why did 'saucer waves' not coincide with such science-fiction feats as the Orson Welles radio adaptation of The War of the Worlds in 1938 or with the happy time of the great comics and their motion-picture versions, such as Flash Gordon (Frederick Stephani, 1936) or Flash Gordon's Trip to Mars (1937)?

Vallee was wrong--completely. Not only in lumping all types of science-fiction films together, but numerically as well. Furthermore, Welles' radio broadcast did produce a mass behavior (of the panic type, as opposed to a fad).

As can be seen from Figure 1, the number of English-speaking science-fiction films for this century is much greater in the 1950 and the 1960 decades, the highest period of UFO activity. In fact, persons living at this time were swamped with such films, which, it is very important to note, were of a highly novel nature (see Appendix, pp. 52-57). Consequently, it behooves us to study these films even though it should be in a nonmanipulative unobtrusive manner (Webb et al. 1966).

Motion pictures have been in existence since the 1890s, when they emerged as one of numerous inventions from Thomas Edison's laboratory. They were soon put into commercial use, thereby surviving and propagating. Science-fiction literature, however, has its roots as far back as the Greek legend of Icarus, and the historical Archimedes.

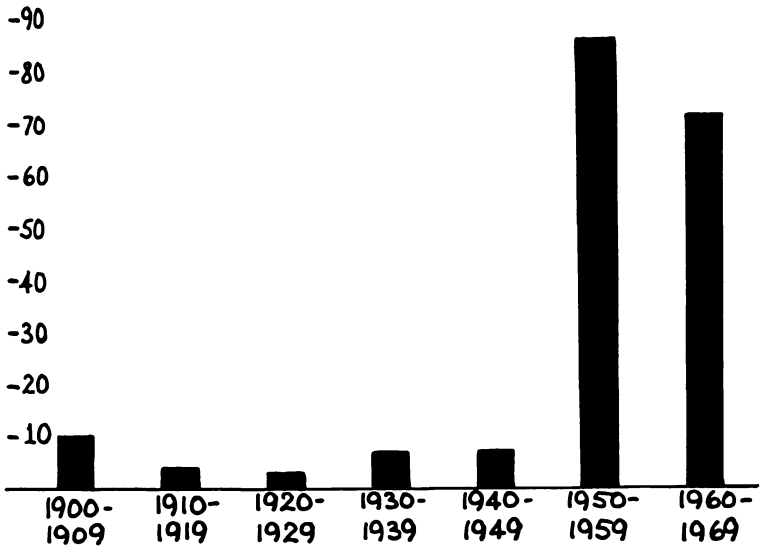

Figure 1. Frequency of science fiction films [dealing with extraterrestrials] released within consecutive decades. Since the 1950s and 1960s were not only the peak years of UFO activity, but also for science fiction films, a relationship may exist. Furthermore, a generation grown up on such films would probably not panic today (as with the famous Orson Welles "War of the Worlds" broadcast), contrary to Keyhoe's theory of governmental censorship. According to this theory, people would panic if they knew we were being visited by aliens, and this probably explains why government censorship occurs. However, among the multitude of UFO books the ratio is 11:1 in favor of the extraterrestrial hypothesis. (Simón 1978) and Saunders (1968) as well as the Gallup Poll have shown that the public believes in flying saucers. The raison d'être for censorship is thus removed. This logical argument against the censorship theory is in addition to the empirical ones (Simón 1976).

Leonardo da Vinci's designs for fantastic war machines, Jonathan Swift's satirical Gulliver's Travels, and Voltaire's philosophical short story "Micromegas" on alien visitors all antedated the birth of the science-fiction genre of the late 1800s and early 1900s (Gunn 1977), which in turn was undoubtedly

a reflection of the optimistic, future-oriented, exploratory-scientific-capitalistic spirit that pervaded Europe and North America for decades.

Motion pictures and science-fiction literature first joined hands as far back as 1902 in A Trip to the Moon by Georges Méliès. Most of the science-fiction films with a "message" were not long in following (e.g., the prototalitarianism of Metropolis and The Shape of Things to Come). Some themes in science-fiction films remain for decades until they are replaced or new ideas coexist. Nevertheless, in both general and specific categories there is a surprising lack of variation of themes. Considering the spaceships they depict, for example, film makers have until recently shown very little imagination. Although the earlier films proposed gigantic cannons (e.g., A Trip to the Moon), or propellers (e.g., A Trip to Mars) for interplanetary travel, the later films, and therefore the bulk of them, have voyaged via rocketships: Just Imagine, Rocketship XM, When Worlds Collide, Queen of Blood, Flash Gordon, Cat Women of the Moon and First Spaceship to Venus are a few.

After the Kenneth Arnold sighting in the State of Washington and subsequent flying-saucer wave of 1947, saucers shared the stage with rocketships (although in one of the 1930s Flash Gordon movies there is a flying-saucer-type craft moving in U-shaped trajectories). * In 1949, the first such film

*A question that puzzled me for quite some time was why were the 1947 flying discs reported by Kenneth Arnold immediately interpreted as alien spaceships, when their chief characteristics were rapid flight and an oval shape? In other words, why was a connection made between a seemingly novel type of aircraft and extraterrestrial travel? Heretofore, science-fiction films had depicted space travel in rocket-like vehicles. However, an inspection of the numerous recent republications of science-fiction magazines reveals that flying saucer designs did exist prior to the 1947 flap--in fact as far back as the late 1920s, and they were viewed as alien spacecraft (Ashley 1976, Sadoul 1975, Kyle 1976, Gunn, 1976). Just as interesting are the airship drawings of the 1890s, reproduced by Kyle (1976), which were inspired by Jules Verne and other science-fiction authors. They are particularly germane because, as various UFOlogists (and Dr. Donald Menzel in his Flying Saucers) have stated, a wave of interest in UFOs occurred during the 1890s. The drawings for the serious reports of airships coincide remarkably with the drawings of the fictional airships.

came out, The Flying Saucers. The 1945 film serial The Purple Monster Strikes had invaders arriving via one-man rockets; the 1950 serial Flying Disc Man from Mars, on the other hand, landed them in jet-propelled flying saucers! Flying saucers in the cinema came to stay with This Island Earth, The Thing, Robinson Crusoe on Mars, Battle of the Worlds, Daleks--Invasion Earth, Earth vs. the Flying Saucers, and others (the latter film, incidentally, was based on Keyhoe's book, Flying Saucers from Outer Space). It is earthlings and not aliens who use flying saucers in Forbidden Planet. Only a few films broke away from the contemporary technology to design new models (e.g., The Man from Planet X, Star Trek, Barbarella, Star Wars, Silent Running). It is interesting to note that the 1953 film adaptation of H. G. Wells' The War of the Worlds had flying saucers instead of the Martian tripod war machines, while in the 1938 radio adaptation, poison gas--reminiscent of World War I--was used by the invading Martians. Terrestrial technology in the popular imagination was adapted to become aliens' technology. The point is that few movie-makers were able to break away from the Zeitgeist.

Another prevalent theme has been that of aliens as invaders (sometimes it seems as if it is the only one). Before 1945, battles in the science-fiction cinema were joined against an individual evildoer, often a satanic-looking villain (the recent Star Wars being a return to this theme). Battling this criminal was an adventuresome task, and not a despairing ordeal typical of later (1950s and after) doomsday films. A change occurred with the end of World War II: the emphasis was now on invasion by another race. The Purple Monster Strikes (whose invasion task force arrived in one-man rockets that brought to mind the miniature Japanese submarines) was one of the first examples. The early invasion films even had character roles for alien enemy collaborators! A variation of the invasion theme concerns the infection or possession of humans by extraterrestrial organisms; examples are The Invasion of the Body Snatchers, The Blob, The Monolithic Monsters, The Brain from Planet Arous, and, more recently, The Andromeda Strain.

Some films have presented the antithesis of the invasion theme. Innocent and peaceful aliens in this case were attacked by an unreasoning, bigoted, and warring human race --e.g., It Came from Outer Space and The Man from Planet X. This too was a parallel with real life. During the early period of UFO sightings, several such objects seen over mili-

tary security areas were shot at (Keyhoe 1973). In The Day the Earth Stood Still the alien wanted to save us from ourselves, urging that we forget atomic power: humanity reacted with hate and fear. Again, there was a parallel. After the movie's release various persons claimed that evangelistic spacemen had given them a ride out into space and had urged universal brotherhood and understanding, the adoption of Christianity, and abandonment of atomic power. This reflected the sheer terror of atomic warfare that existed at the time (and was reflected in many later films). The aliens, therefore, served as a convenient point of view for the screenwriter's xenolatric* flagellations of humanity (such movies usually included a lecture given to the earthlings by the aliens). The pacifist persuasion thus had its chance for comment. The world had just recently emerged from defeating Hitler's armies only to find itself facing Stalin's. National Socialism's and Communism's frank statements of world conquest had both permeated the Zeitgeist so much that the idea was projected into imaginary aliens' society. Many if not most science-fiction films extant were made either in the cold-war 1950s or in furtherance of the spirit of that era (this explains why in so many films military personnel are present). Meanwhile, in literature, it has been said, science-fiction plots have usually reflected an extension of our cultural and technological dilemmas (Del Rey 1974).

Concerning the morphology of the aliens in films--and this is very important to UFOlogists--almost all are humanoids, sometimes with minor facial changes. As to illustrations for science-fiction literature, aliens are most often a composite of Earth organisms--e.g., reptilian characteristics with the usual tentacles or claws--nothing truly alien. Because it is so hard for us to break away from our perceptual set, I am very skeptical of reports of human-like occupants of UFOs. I would be less skeptical if "monsters" were reported in connection with UFOs. After all, considering the enormous variety of life forms that have appeared during millions of years on this planet alone, the chances that human-like bipedal intelligences with mammalian behavioral traits have developed on other planets--and at the same time as on this planet!--are in my opinion very, very small.

*This term, recently coined by Isaac Asimov (1976), means hatred for one's own culture combined with idolization of other cultures while remaining blind to any shortcomings in the latter.

If and when we encounter extraterrestrial organisms, whether "intelligent" or not, they will not be reptilian, they will not be mammalian, they will not be humanoid, they will not be insect-like, they will be alien.

The anthropomorphic attitudes of screenwriters and artists not only direct the morphological aspects of aliens and UFO occupants, but their motivational and technological aspects as well. A similar effect is true of scientists. Thus, a physicist has stated that according to presently-known physical laws UFOs could not exist (Markowitz 1967), * while another scientist commented, in studying the so-called "swamp gas" sightings of 1966, that "A dismal swamp is a most unlikely place for visitors from another planet!" (Carpenter 1966, p57). Also: "Further, why would intelligent beings wish to investigate remote deserts (such as in New Mexico) instead of obvious evidence of intelligence on earth, such as large cities?" (Kuiper 1967, p842). Other remarks have commonly incorporated the idea that if flying saucers did exist why didn't they break down more often and thereby offer us with physical evidence? Or, and this is my favorite, if they have traveled all this distance and discovered life on this planet, why haven't they communicated with us? If I may be allowed an anthropomorphic answer of my own: If flying saucers do exist, they could be an unobtrusive, data-gathering group of scientists or anthropologists guided by rules of noninterference, something on the order of Star Trek's "Primary Directive"!** Objections to the existence of flying saucers on the grounds of space travel limitations or lack of saucer crashes or their not communicating with us are just not realistic. Widely differing Earth cultures came up with important but simple inventions like gunpower, the wheel, the abacus, the blow-dart, and the boomerang, all of which were unknown to other cultures at the time; the same could apply to an alien culture in relationship with ours. Furthermore, because of the second industrial-scientific revolution in which we are immersed, our scientific findings and their applications have increased enormously and our horizons have expanded so that the attitude nowadays as to technology is a realistic "anything may be possible."

*According to our laws of hydrodynamics fish cannot swim, and according to our laws of aerodynamics a bumblebee cannot fly (Brett 1965, Gray 1957).

**"Primary Directive" stands for an unconditional policy of noninterference in the affairs of other planets' cultures if they are technologically less developed.

The 1950s were the springtime of science-fiction films; in that decade both the United States and the rest of the world were swamped with science-fiction films. A total of 87 films were made in that decade which were based upon one or both of two themes, visitors from space and exploring space. The causes for such a deluge are several. First, the cinema needed to compete with the new medium of television since it was thought that television would replace the cinema. So new lures were used (like Cinerama, 3-D, Todd A-O). Second, the 1950 film Destination Moon,* described by Dennis Gifford (1971) as the watershed of science-fiction films was such a success that it stimulated the production of other films along similar lines. John Baxter (1974) stated that:

> If one were to graph the American film between 1950 and 1960, the curve would be a revealing one. After Destination Moon in 1950, a slight rise might be detected as producers cashed in on the success of this new untried medium, and during 1952 and 1953, occasional rises would be apparent as film-makers unearthed new elements from the past or conceived new ones to play the old tricks [p130].

The third factor in the flood of science-fiction films was the flying saucer waves of 1947, 1952, 1957, with other sightings in between (according to Vallee and Vallee [1966] there was also a 1954 wave). Unfortunately, it would not be wise to perform a correlational analysis between the number of sightings and the number of films. For one thing, as Jacobs (1975) has pointed out, the number of UFO sightings, as recorded by the USAF, is not precise. For another, not only are some of the dates associated with the films inexact, but they are also misleading since the films may circulate for years afterwards in both theaters and television. For example, although the release date for The Day the Earth Stood Still was 1951, Menzel and Boyd (1963) mention its presence during the 1952 summer UFO wave. Also, UFO sightings (or waves) may stimulate the production of films, but they take a very long time to produce, sometimes years. Lastly, as I have pointed out elsewhere (Simón 1978), one film may be a behavior catalyst and spark off a mass behavior,

*Donald Menzel assisted in the making of this film, as J. A. Hynek did with Close Encounters of the Third Kind.

like a fad, whereas another on the very same subject will not (as was the case with Jaws, and, Blue Water, White Death, respectively). Thus, there is a qualitative factor which conventional statistics may not reveal, even though the use of such statistics tends to appear more scientific (Kuhn 1961).

Where does this leave us? It leaves us on a two-way street. Not only does the science-fiction cinema influence our culture, our perception, and our cognition, but it too is affected by the contemporary Zeitgeist (McCann 1964). Like the film Jaws and the many fatalistic films on The Bomb, it can be a cause and not just an effect, which should constantly be taken into account by field investigators trying to piece together the UFO puzzle, since whether one likes it or not, "UFOs" have been closely linked with the science-fictional "flying saucers."

> The social significance of sf films is a good deal harder to analyse, especially when one is still so close to the period which produced it in its greatest bulk. We have long recognised that the horror film is a palimpsest of national psychoses from which it is possible to deduce much of interest about cultural motivation, but the true significance of the sf film has yet to be explored fully [Baxter p13].

APPENDIX

This is a list of science fiction films in English with themes of either visitors from space (From), or traveling to space (To), or both (To/From). The type of spacecraft is identified except where there is a question mark the film did not show the craft clearly--e.g., Attack of the 50 ft. Woman (1958)--or in those cases where I was unable to view the film. In some instances, the movie does not show the spacecraft, but it is referred to specifically as, e.g., a flying saucer. A question mark by the year indicates uncertainty as to the exact release date due to conflicting sources.

Date	Title	To or From	Craft
1902	A Trip to the Moon	to	cannon
1904	Whirling the Worlds	to	propellers
1905	A Moonlight Dream	to	?

Date	Title	To or From	Craft
1906	Around a Star	to	bubble
1906	Voyage to a Star	to	?
1906	Voyage to the Moon	to	?
1906	The "?" Motorist	to	car
1906	When the Man in the Moon Seeks a Wife	from	?
1908	The Airship	from	?
1909	A Trip to Jupiter	to	?
1910	A Trip to Mars	to	anti-gravity
1913	A Message from Mars	from	?
1917	A Trip to Mars	to	propeller
1919	First Men on the Moon	to	anti-gravity
1920	Algol	from	?
1921	A Message from Mars	from	?
1929?	The Woman on the Moon	to	rocket
1930	Just Imagine	to	rocket
1935	What! No Men?	?	?
1936	The Shape of Things to Come	to	cannon
1936	Flash Gordon	to/from	rocket
1937	Mad About Money	to	rocket
1938	Flash Gordon's Trip to Mars	to/from	rocket/saucers
1939	Buck Rogers	to/from	rocket
1940	Flash Gordon Conquers the Universe	to	rocket
1942	Two Weeks to Live	to	?
1945	The Purple Monster Strikes	from	rocket
1948	Superman	from	rocket
1948	Brick Bradford	to	top
1949	King of the Rocket Men	?	rocket
1949	The Flying Saucer	to	saucer
1950	Destination Moon	to	rocket
1950	Rocketship XM	to	rocket
1950	Flying Disc Man from Mars	from	saucer
1951	Radar Men from the Moon	to/from	rocket
1951	Captain Video	to	?
1951	Flight to Mars	to	rocket
1951	The Man from Planet X	from	bathysphere
1951	The Thing	from	saucer
1951	The Day the Earth Stood Still	from	saucer
1951	When Worlds Collide	to	rocket
1952	Red Planet Mars	?	?
1953	Commando Cody	to	rocket
1953	The Lost Planet	?	?
1953	Abbott and Costello Go to Mars	to	rocket

Date	Title	To or From	Craft
1953	Spaceways	to	rocket
1953	Project Moonbase	?	rocket
1953	Cat Women on the Moon	to	rocket
1953	Riders to the Stars	?	rocket
1953?	Invaders from Mars	from	saucer
1953	The War of the Worlds	from	saucer
1953	Robot Monster	from	?
1953	Phantom from Space	from	?
1953	It Came from Outer Space	from	?
1953	Killers from Space	from	saucer
1953	The Twonky	from	TV
1953	The Canadian Mounties vs the Atomic Monsters	?	?
1954	Gog	from	?
1954	Tobor the Great	to	?
1954	Devil Girl from Mars	from	?
1954	Target Earth	from	?
1954	Stranger from Venus	from	?
1954	The Cold Sun	from	?
1954	Crash of Moons	?	?
1954	Riders to the Stars	to	?
1955	This Island Earth	to/from	saucer
1955	King Dinosaur	to	?
1955	Forbidden Planet	to	saucer
1955	The Quartermass Xperiment	to/from	saucer
1955	Beast with a Million Eyes	from	saucer
1956	X, the Unknown	from	?
1956	World Without End	to	?
1956	Short Vision	from	saucer
1956	Fire Maidens from Outer Space	to	rocket
1956	Satellite in the Sky	to	rocket
1956	Invasion of the Body Snatchers	from	seeds
1956	Supersonic Saucer	from	saucer
1956	Unidentified Flying Objects	from	saucer
1956	Earth vs the Flying Saucers	from	saucer
1956	It Conquered the World	from	?
1957	Zombies in the Stratosphere	from	?
1957	Enemy from Space	from	?
1957	The Giant Claw	from	flew in
1957	Space Children	?	?
1957	Invasion of the Saucer Men	from	saucer
1957	Quartermass II	from	spores
1957	Spaceship Sappy	to	?
1957	Not of This Earth	from	?

Date	Title	To or From	Craft
1957	Kronos	from	fireball
1957	The 27th Day	from	?
1957	20 Million Miles to Earth	to/from	rocket
1958	Plan 9 from Outer Space	from	saucer
1958	It! The Terror from Beyond Space	to/from	rocket
1958	Queen of Outer Space	to	?
1958	From the Earth to the Moon	to	rocket
1958	I Married a Monster from Outer Space	from	?
1958	Night of the Blood Beast	to/from	rocket
1958	The Brain from Planet Arous	from	?
1958	The Crawling Eye	from	?
1958	The Astounding She-Monster	from	?
1958	The Space Children	from	?
1958	The Blob	from	meteor
1958	Attack of the 50 ft. Woman	from	?
1958	The Monolith Monsters	from	meteor
1958	The Brain Eaters	from	?
1958	The Flame Barrier	to/from	rocket
1958	Space Master X-7	to/from	rocket
1958	Strange World of Planet X	?	?
1958	The Trollenberg Terror	from	?
1959	Invisible Invaders	from	?
1959	The Cosmic Man	from	?
1959	The Mouse on the Moon	to	rocket
1959	Atomic Submarine	from	?
1959	Teenagers from Outer Space	from	rocket/saucer
1959	Missile to the Moon	to	rocket
1959	First Man Into Space	to	rocket
1959	Have Rocket Will Travel	to	rocket
1959?	Angry Red Planet	to	rocket
1960	12 to the Moon	to/from	?
1960	The Phantom Empire	to/from	?
1960?	Journey to the 7th Planet	to	?
1960	Visit to a Small Planet	from	saucer
1960	Village of the Damned	from	ray
1960	Moon Pilot	?	?
1961	The Phantom Planet	to	?
1962	Assignment Outer Space	to	?
1962	Valley of the Dragons	to	rocket
1962	Road to Hong Kong	to	rocket
1962	The Three Stooges in Orbit	from	?
1962?	Invasion of the Star Creatures	from	?
1962	First Spaceship on Venus	to	rocket

Date	Title	To or From	Craft
1963	The Day Mars Invaded Earth	from	ray
1963	The Day of the Triffids	from	meteor
1963	Unearthly Strangers	?	?
1963	Invasion of the Animal People	?	?
1963?	Battle of the Worlds	to/from	rocket/saucer
1963	Master of Venus	?	?
1963	Voyage to the End of the Universe	?	?
1963	The Haunted Palace	from	?
1964	First Men on the Moon	to	bathysphere
1964	Santa Claus Conquers the Martians	to/from	saucer
1964	The Human Duplicators	from	ray
1964	Frankenstein Meets the Space Monster	from	?
1964	The Earth Dies Screaming	?	?
1964	Blood Beast from Outer Space	from	rocket
1964	The Creeping Terror	from	?
1964	Robinson Crusoe on Mars	to/from	rocket/saucer
1964	Beast with Five Fingers	to	?
1964	The Crawling Hand	to	?
1965	Dr. Who and the Daleks	?	?
1965	Mutiny in Outer Space	to	?
1965	Spaceflight IC-1	?	?
1965	Hercules Against the Moon Men	from	?
1965	Planet of the Vampires	to	?
1965	Die, Monster, Die	from	meteor
1966	The Bubble	?	?
1966	Daleks--Invasion Earth	from	saucer
1966	Queen of Blood	to/from	rocket
1966	Women of the Prehistoric Planet	to	?
1966	The Navy vs. the Night Monsters	from	?
1966	Retik, the Moon Menace	to/from	?
1966	Way, Way Out	to	rocket
1966	Mars Needs Women	from	?
1966	Invasion	from	?
1967	The Reluctant Astronaut	to	rocket
1967	Planet of the Apes	to	rocket
1967	Quartermass and the Pit	from	saucer
1967	Rocket to the Moon	to	rocket

Date	Title	To or From	Craft
1967?	They Came from Beyond Space	from	meteor
1967	The Terrornauts	to/from	saucer
1967	The Night of the Big Heat	from	?
1967	Danny the Dragon	from	?
1967	You Only Live Twice	to	rocket
1968	The Bamboo Saucer	to	saucer
1968	Night of the Living Dead	to/from	space probe
1968	Mission Stardust	to	?
1968	Voyage to the Prehistoric Planet	to	?
1968	Five Million Miles to Earth	from	rocket
1968	Barbarella	to	oddly-shaped
1968	2001: A Space Odyssey	to	rocket/station
1968	Countdown	?	?
1968	Mission Mars	?	?
1969	Moon Zero Two	to	LM
1969	The Body Stealers	from	?
1969	The Astro-Zombies	from	?
1969	The Illustrated Man	to	rocket
1969	The Long Rain	?	?
1969	The Green Slime	from	rocket
1969	Marooned	to	rocket
1969	Doppelganger	to/from	rocket

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HUMANOIDS REPORTED IN UFOs, RELIGION, AND FOLKTALES: HUMAN BIAS TOWARDS HUMAN LIFE FORMS?*

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and Richard M. Coffman

The initial motivation for this study came from a former colleague who expressed a rarely-heard complaint, "All UFO occupants look alike." While it is true that science fiction writers are not lacking in their descriptions of the usual sponge-featured or nine-legged Bug Eyed Monsters, we decided to try a different approach and examine reports of close encounters with UFO occupants. If humans have had contact with UFO occupants, why, then, should UFO occupants have human characteristics? The richness of life varieties on earth would suggest that UFO occupants would at least be capable of possessing shapes as varied as those found locally, from blue-green algae to blue-tail flies to blue-tick coon hounds. Most individuals within earth's biomass do not have humanoid shape, yet it seems that UFO occupants tend to assume this form.

Before we proceed further, we should define what we mean by "humanoid." Disagreement even exists in spelling. Simpson (1964) prefers "humanoid," whereas Bieri (1964) favors "huminoid." Simpson's definition of humanoid refers, quite plainly, to a "natural, living organism with intelligence comparable to man's in quantity and quality, hence with the possibility of rational communication." We like this definition; however, we find it unsuitable for our purposes. If reports of sightings of UFO occupants are rare, reports of communications between humans and UFO occupants are even

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rarer. Another approach to the definition of "humanoid" is one taken by Wescott (1975), who defines the word as a quality of any species having "either its morphology or behavior conspicuously analogous to our own." Again, this includes a definition of a function, and not purely a physical characteristic. For the purposes of this study, therefore, we must define "humanoid" quite simply as a being which has two arms with appropriate grasping appendages, two legs which perform bipedal locomotion, some tubular connecting body, and a collection of sensory organs at the top, i.e. a head. In applying this definition, it will be obvious that diverse creatures such as Saturday-morning cartoon coyotes and the jackal-headed ancient Egyptian god Anubis would both be described as "humanoid." On the other hand, a knuckle-walking gorilla with a vocabulary of 300 words does not qualify. The use of our definition excludes the more scholarly concept of "hominid," which suggests an ape-like being with varying degrees of human traits.

It is no surprise that man creates objects in his image and likeness. There are many traits of humans in obviously un-human objects. To the ancient Egyptians, the Nile river did not merely fail to rise, it refused to rise (Frankfort et al. 1972). The sky-goddess Nut was an oversized humanoid. Some Victorian poets believed the trees were nodding to them. Ships have bellies and the earth has bowels. Needles have eyes and shoes have tongues. Such piecemeal descriptions or attributes, aside from being the pivot points for numerous puns, are pervasive and impossible to avoid in our colorful languages.

I. Once Again: What Is the Probability of Life Out There?

This study is not so much concerned with whether there is intelligent life elsewhere in the universe as it is with whether intelligent life would have formed in humanoid shapes. There are both extensive reviews and original research documents dealing with the question of extraterrestrial life, most of them surprisingly readable (see Simpson 1964 & 1973, Ornstein 1964, Blum 1965, Sagan 1973, and Shklovskii & Sagan 1966). In truth, there are regiments of highly qualified life scientists and astronomers who worry daily about extraterrestrial life. Nevertheless, as Blum (1965) points out, the probability of biological evolution's having arrived in its present state and the combination of biological and cultural evolution's having arrived in its present state

are two different matters. Calculations by Blum arrive at a probability of biology in its present form at about 10^{-9}, whereas biology plus human intelligence, culture, and history approaches a probability of 10^{-18}. Given previous estimates of habitable planets for man, this means that we are the only ones in the universe who look and behave like us, provided that all civilizations elsewhere in the universe evolved independently. Other "calculations" of the probability of humanoid life form are mere descriptive terms, ranging from "vanishingly small" (Menzel 1966) to "nearly impossible" (Simpson 1964) to "practically zero" (Jacob 1977). Qualitatively or quantitatively, these are small estimations.

However, it is not enough to estimate the probabilities that extraterrestrial civilizations have evolved independently. Arrhenius (1908) was among the first to suggest a "panspermia" theory, that the universe may have originally been "infected" with organisms accidentally escaping from a planet where life had already been established. * Shklovskii and Sagan (1966) have dealt, we think, fairly with the improbability of spontaneous, rampant panspermia. Nevertheless, the possibility does not end at this point. What about the possibility of intentional infection, or in Crick and Orgel's (1973) lofty terminology, "directed panspermia"? For whatever reason, extraterrestrial societies might have deliberately elected to seed certain planets throughout our galaxy and, possibly, nearby galaxies. Working from the estimated age of the local galaxy, Crick and Orgel estimate that there could have been as much as seven billion years available for "primary origin of life, development of technology, and passage between planets." Unfortunately for the directed panspermia theory, there is too much scientific evidence available which supports the local origin of humanoids; more "missing links" tracing mankind back to Olduvai Gorge are being uncovered daily. However, it should not be underemphasized that our civilization is fast approaching the level of technology where we could, if we should desire, launch payloads of thousands of kilograms of freeze-dried earthly organisms to hospitable, extrasolar planets. According to Mitton and Lewin (1973) A. D. 2000 could be a feasible date for us to begin a new round in the search for microorganismic Lebensraum. While Crick and Orgel (1973) do not suggest that our planetary bi-

*This sort of reasoning has been used to explain the preponderance of humanoid actors appearing on the popular Star Trek television series.

ology was a result of directed panspermia, there is a clear possibility that we will certainly possess the capability to export our biology to other planets, whatever the reason. Whether or not we elect to do so, it is even more certain than it is merely a matter of time before we begin shipping terrestrial humanoids beyond the solar system.

II. What Should UFO Occupants Look Like?

Any of us who have taken a rudimentary course in statistics will attest there are unknown dangers in extrapolating supposed universal truths from a single sample. The earth is the single sample of the known spectrum of habitable planets for man. Provided, of course, that terrestrial psychologists can ever agree upon what is meant by "intelligence," man is only a single sample of "intelligent life." Space scientists are continuously being reminded how wrong they were in recently predicting the atmospheres, geologies, and meteorologies of such close neighbors as the Moon, Venus, Mars, and Jupiter by expecting what is known on earth. Therefore, we should like to examine the proposals of some other writers as to what intelligent extraterrestrial life should look like. Hopefully, their estimations have not been shrouded by the myopia of over-familiarity with humanoids.

As Nicolson (1960) has noted, beginning with the invention of the telescope there was an explosion of literature relating to the concept of a plurality of worlds. There has been no lack of sheer imagination as to what extraterrestrial creatures might look like, some humanoid and some not. For this study, however, let us begin looking at speculations of a fairly recent date. Howells (1961), beginning with what is known of terrestrial evolution, makes a case for the evolution of a generalized life form to have evolved elsewhere. For instance, he states that a brain evolved in man to allow him a certain independence of action not available to social insects such as bees and ants. Two or more sexes will most likely have evolved, allowing for larger gene combinations and, hence, faster adaptation to the environment. A creature which moves about on land will have a freedom of movement and verbal communication not possible in water. Next, our creature needs at least two arms with appropriate fingers to be able to carry on his creative work. If the arms and fingers must be occupied for locomotion, either swimming or flying, there is no opportunity to put the arms

Table 1

SUMMARY OF HYPOTHESIZED EXTRATERRESTRIAL CHARACTERISTICS

Asimov (cited in Sagan 1973)
bilateral symmetry, two hands, two or more eyes, sensory center, probably humanoid

Anderson (1963)
hands, pairs of limbs with fingers, bipedal (either walks or hops) or hexapod, head with sensors, two or more eyes, two or more ears, land-dwelling, air-breathing

Berrill (1964)
tubular structure, bilateral symmetry

Bieri (1964)
tubular structure, bilateral symmetry, brain and sensors with frontal location, land and air dwelling, fingers, protective covering as skin, feathers, fur

Gardner (1964)
limbs like tails, fins, arms; jointed appendages, bilateral symmetry, sensory center with face, ears, nose, eyes, arms with fingers

Howells (1961)
one head, two or more sexes, two arms, possibly hexapod, centaur-like

Menzel (1966)
land dwelling, limbs, tubular structure, pairs of eyes, pairs of ears, stands upright

Wescott (1975)
vertebrate, possibly six limbs, head or sensory stalk, olfactory detection, electromagnetic detection

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to other uses. At this point, Howells makes one final improvement in his extraterrestrial creature by assigning it the status of a "bimanous quadrupedal hexapod." That is, it could have four legs and two arms, not unlike a celestial centaur. We are led to suppose that such a creature would have the intelligence of a human coupled with the strength and endurance of a horse (and, hopefully, not the other way around). Apparently, this chapter by Howells in 1961 triggered a series of speculations by other serious writers searching for an ideal extraterrestrial shape (see Anderson 1963, Bieri 1964, Berrill 1964, Gardner 1964, Menzel 1966, MacGowan & Ordway 1966, Wescott 1975, and Asimov [cited in Sagan 1973]). The more common threads in these arguments for the ideal shape entail the following characteristics: bilateral symmetry, tubular shape, land-dwelling, at least two limbs with fingers, at least two limbs for locomotion, central brain, a collection of sensory organs near the central brain which could accurately detect the electromagnetic spec-

trum, odors, and sound. Table 1 gives a general summary of the characteristics of these hypothesized extraterrestrial beings. It can be seen, of course that a recurring theme in much of this literature is that of an intelligent life form which possesses two arms, at least two legs, a head, an upright tubular structure, bipedal locomotion, and bilateral symmetry. Given these so-called constraints, it appears that there may be an inevitable human tendency to assume that extraterrestrials "ought" to assume a humanoid shape. In the next several pages we would like to show why this bias towards a humanoid life form may not be necessary.

A. The Requirement for Bilateral Symmetry

In 1964, Martin Gardner in his popular book The Ambidextrous Universe presented a fascinating argument as to why human beings evolved with bilateral symmetry. His basic line of reasoning was that in a world where locomotion is required, bilateral symmetry allows an animal to move rapidly and, thus, gain a competitive advantage over other non-bilaterally symmetrical competitors. A fish, for example, says Gardner, can have a great competitive advantage when it can move rapidly about in search of food. Noses and mouths will preferentially develop near the front end of the fish, because that is the end the food comes to first. Eyes will develop in the front, because a fish needs to see where it is going, not where it has been. * In its environment, a fish has nothing in particular to distinguish left from right; danger or food or mates are all found equally probably from the left or the right. Owing largely to gravity, however, says Gardner, the environment changes drastically when the fish swims up or down; when he goes up, he encounters the water's surface, and when he goes down, he meets the ocean's floor. When the fish and reptiles crawled out of the oceans and became birds and mammals, there was still no change in the environment which required a change in bilateral symmetry. On land, up and down became even more important (presumably because of the lack of buoyancy) but danger, food, and mates were still found equally probably to the left and to the right.

*Of course, it is not the location of eyes but their direction of pointing that allows the fish to see where it is going. -- editor's note.

The question remains, however: how important is bilateral symmetry for locomotion? Our reply is that the importance depends on at least three factors: the physical environment, the animal's internal engineering, and the competition.

To begin with, it is well known that even human beings are not precisely bilaterally symmetrical. One nostril is usually shaped differently from the other. Right arms tend to be preferentially larger and stronger than left arms. Females typically tend to have one breast noticeably larger than the other; males, likewise, usually have one testicle larger than the other. The rule of symmetry is violated even more when we examine the viscera. The heart lies to one side, and the intestines, stomach, pancreas, and liver are not positioned symmetrically. Even functional differences exist in perception. When two dim lights are flashed simultaneously, the one on the left is commonly perceived first (Sekuler et al. 1973). It is as if the eye is saying, "Read this from left to right." From the point of view of an engineer, however, we doubt that these asymmetrical differences would make much of a competitive disadvantage. Indeed, we could argue that under certain circumstances they would offer a slight advantage.

Is locomotion possible with an asymmetrical structure? The answer is yes, but this depends largely upon the organism's environment. The whimsical example of the cow who grew up with both right legs shorter than its left legs, merely because her ancestors had to walk on the side of a mountain is not out of consideration here. Suppose there are intelligent beings who have evolved in giant vortices. The Great Red Spot on Jupiter is now believed to be one such vortex. Beings moving in a constant counterclockwise direction would surely develop into rather lopsided shapes. The carefully designed racing cars of the Indianapolis 500 are notoriously asymmetrical. Their right wheels, for example, are larger than their left because of the environment; they specialize in making mostly left turns, and a car which makes easy right turns is at a decided disadvantage.

Asymmetry is certainly possible for flight in a normal, Euclidean world, too. Figure 1 shows an RPV (Remotely Piloted Vehicle) currently under study by Robert T. Jones and Ronald Smith of Ames Research Center-NASA, Moffett Field, California. This particular wing configuration is primarily of interest in trans-sonic flight, where wing

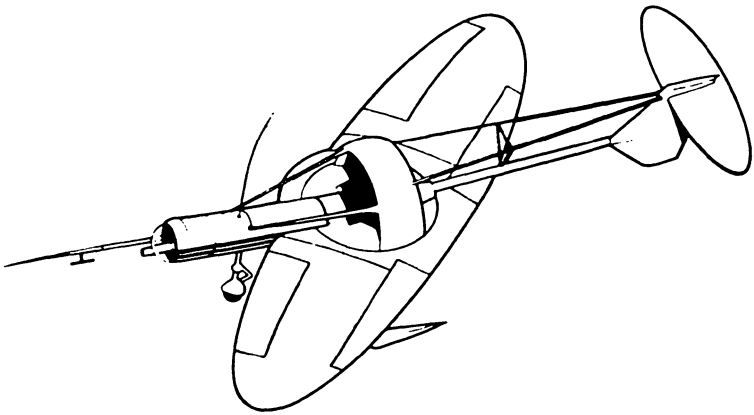

Figure 1. Oblique wing remotely piloted vehicle. Courtesy R. T. Jones and R. Smith, Ames Research Center-NASA, Moffett Field, California. Illustration by Betsy A. Palay.

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sweep offers a distinct advantage in overcoming the sound barrier. However, this particular model, which has a wing span of about 9 meters, is not designed for trans-sonic flight but, instead, flies at speeds as low as 70 knots (130 km/h). This value, it should be noted, is well within the speed ranges of some birds. The oblique wing, as it is called, is quite capable of controlled maneuvers and level flight. It should also be added that this oblique configuration is obtained at a significant energy cost when flown at such slow speeds; the advantage of the asymmetry is realized in trans-sonic speeds--the achievement of which is largely dependent upon environmental factors, namely temperature and compressibility of the medium to be flown through (R. C. Smith, personal communication June 28, 1977). Another interesting observation about this particular aircraft is that it is remotely piloted. The main factor that prevents pilots from volunteering to fly it is not aeronautical instability, but the psychological unacceptability of the shape. Apparently, human pilots (who are themselves bilaterally symmetrical) find it difficult to accept flying in an asymmetrical vehicle.

Martin Gardner believes that if we find intelligent life

on other planets, we would most probably recognize it by its bilateral symmetry. Perhaps this is so, but then how could we be sure that we had not encountered an extraterrestrial jeep, gumball machine, or kitchen sink? These objects, too, are manufactured by intelligent life, but there is also no reason why, for example, a gumball machine has to have such symmetry. A gumball machine does not require locomotion--at least earthly ones do not. At the low speeds jeeps are typically driven, the bilateral symmetry of the vehicle does not offer much of an advantage as long as the weight is distributed properly. We would like to hypothesize that it is man's own bilateral symmetry which influences his passion for it in the objects he creates. These objects can be shopping centers, bathtubs, or musical chords and rhythms.

Second, it is stated that bilateral symmetry gives an organism a competitive advantage. However, what if there is no such thing as a competitive environment? It has yet to be shown that evolution could not take place in a non-competitive environment. There are also other possibilities, such as beneficial mutations in evolution; perhaps at some time in the distant past man's language ability was one such mutation. Rather unhydrodynamically- and asymmetrically-designed creatures like the spiny lobster are believed to travel en masse in single file because of the drag reduction offered in such movement (Bill & Herrnkind 1976). It is conceivable that other asymmetrical creatures, e.g., the flounder, will be discovered which are simply parts of larger symmetrical structures. Flounder schools and colonies of bacteria could represent the larger symmetrical structures "especially if viewed through the eyes of an alien."

In short, we would like to caution against anyone's expecting to find bilateral symmetry in extraterrestrial life, at least until we know something more about the environment in which we expect to find it. We find no reason to dispute the expectations of bilateral symmetry in a Euclidean, earthlike-gravity environment, but this is as far as we are willing to extend our bets. Man, it bears repeating, may be expecting to find bilateral symmetry on other worlds primarily because he is himself formed that way.

B. The Requirement for Locomotion

Certain writers have argued, or at least suggested, that extraterrestrial land-based creatures are bound to have evolved either a quadrupedal or bipedal form of locomotion

(Howells 1961, Anderson 1963, MacGowan & Ordway 1966, and Wescott 1975). It had been thought, before 1972 at least, that four limbs more efficiently used energy than two limbs, especially for some creatures. Some ingenious experiments by Richard Taylor and colleagues at Harvard have changed the direction of this belief, too. Taylor and Rowntree (1973) tested the relative cost of bipedal versus quadrupedal motion in both the capuchin monkey and the chimpanzee. Surprisingly, energy requirements as measured by oxygen consumption did not differ significantly in animals taught to run on two legs versus those taught to run on four legs. The conclusion to this experiment was that, at least for these primates, having four legs offers no energy savings over having two legs. Taylor and Rowntree (1973) remark, "Thus the cost or efficiency of bipedal versus quadrupedal locomotion probably should not be used in arguments weighing the relative advantages and disadvantages that bipedal locomotion conferred on man." If the same laws of biological energy conversion are found on Planet X as on earth, there would be no particular energy advantage in the design of a Celestial Centaur, as suggested by Howells (1961).

So much for earthly quadrupedal locomotion, but how about bipedal locomotion? Is that the most efficient way to go? Again, that depends upon the velocity requirements of the organism, say Terence Dawson and Richard Taylor. Dawson and Taylor (1973) this time studied the running versus hopping mode of locomotion of the very terrestrial kangaroo. At low speeds, around 6 to 7 km/h, the kangaroo moves very inefficiently on all fours plus his tail as a fifth limb in what is described as a "pentapedal gait." In effect, the kangaroo is over-engineered for this speed. However, as the kangaroo switches to a hopping gait and faster speeds, oxygen consumption actually is observed to fall off slightly. Such results indicate that the hopping mode is significantly more efficient as a method of travel above speeds of 18 km/h. Dawson and Taylor suggest that the kangaroo's huge achilles tendon and attached bone structures actually allow energy expended in a hop to be conserved and recycled in subsequent hops, rather than being dissipated uselessly in shock absorption or lateral motion. One big question is unanswered, and that is, why don't other mammals adopt hopping as a more efficient means of locomotion? We suspect that this is, indeed, what jackrabbits and horses and cheetahs do when opting for top speed. They revert to a sort of monopedal hop, if effect, bringing both hind legs into a unified motion, eliminating lateral energy dissipation and taking full advantage of the spring-loaded achilles tendons.

C. The Requirement for a Bilateral Sensory Center

As Menzel (1966), Asimov (cited in Sagan 1973), and Anderson (1963) indicate, there are distinct advantages to having ears and eyes in pairs. The fact that each eye sees a slightly different image allows for stereoscopic vision and, hence, in part, depth perception to a distance of about 6 meters. Likewise, having a pair of ears means that the difference in time that it takes sound to strike one eardrum before the other allows for the localization of sound. Elephants can go a step further by pointing their trunks in the direction of an odor. Nevertheless, we suggest that the problem of localization of sensory stimuli like sight, sound, and odors could be done as efficiently without pairs of receptors. Why, for example, could not a single, laterally moving eye be able to perform the same distance-judging triangulation as a pair of eyes? You can get the same effect by closing one eye and then moving your head to the right and left to judge a distance. And the direction of an odor could also be crudely judged by an organism which had a radially situated nose.

D. Designing a More Efficient Extraterrestrial Creature for an Earth-Like Environment

We should have every reason to expect that UFO occupants come from life forms far more efficiently evolved than our own humanoid shape. As Jacob (1977) stresses, evolution is always a matter of tinkering, a reorganization of what already existed. We add to what we had before, covering up old layers with new. It is to be expected in human evolution that the humanoid life form is merely a brief pause on the way to some other configuration. Evolution is never complete, and there are always continuous changes being made with no particular end product in mind.

We cannot, therefore, believe that the humanoid shape is the ultimate design configuration, and we would like now to propose a few modest changes in evolution to create a creature who evolved on Planet X, where Planet X's environment is similar to earth's. We arrived at this configuration after several weeks' late-night meditation, and with the help of an understanding artist. Although we do not yet have a name for it (her? him?) we have elected to classify this creature as a "bimanous monopedal kangaroid."

First, the bilaterally symmetrical shape has remained. Given a Euclidean space for evolution, we think it wise to

Figure 2. The bimanous monopedal kangaroid. Illustration by Betsy A. Palay.

maintain a design which does not favor left from right. Also implicit is the understanding that the kangaroid's evolution came about in a competitive environment. Second, given that our extraterrestrial friend came from the water, you will note that it did not do so by crawling on fins and flippers, but through standing on its tail. The tail flukes have evolved into a large cloven foot. If necessary, it can waddle slowly, although in an inefficient and over-engineered manner, like a penguin. Third, its real advantage in locomotion is in its powerful, single kangaroo-like leg. With little wasted energy, it can bound along at speeds of up to 22 km/h for an hour or longer. Fourth, as suggested by most other writers (see Table 1), it has a collection of sensory organs located close to a central brain. However, it made no sense to create the eyes and ears in pairs, when one would work as efficiently. Also, the single ear and eye tend to eliminate the human's little understood and perhaps useless configuration of nervous system decussation. (Decussation is the crossing-over of nerve fibers in the nervous system above the midbrain.) The single ear merely points to the source of sound. The single eye which moves laterally in an eye slot can triangulate distances of up to 6 meters. The olfactory system has been modified to allow for directional sensing. Therefore, nose holes (olfac-

tory pits?) have been placed around its neck. Fifth, the concept of a vertebrate, tubular structure has been maintained, with food ingested at the orifice below the eye; excretion is accomplished at a yet-to-be-determined point further down its structure. Regrettably, we found ourselves unable to improve on the concept of a pair of arms; this is the single most-humanoid feature remaining. Nevertheless, we were able to reduce the number of fingers to a minimum of three.

III. Deities, Folktale Creatures, and UFO Occupants

Thus far, we have been building a case against the evolution and perfection of humanoid shapes in a terrestrial environment. Given the state of the art of evolution, we feel that a humanoid is about equally as likely to have developed as Howells' bimanous quadrupedal hexapod or our bimanous monopedal kangaroid. Each of them would occur exactly once and never again. We are in full agreement with Simpson's (1964) and Jacob's (1977) opinion that earth is the breeding ground for the first and last and only humanoids.

Having come so far in case-building, we would now like to turn to some harder data. In keeping with our original suspicion that most reports of close encounters with UFO occupants are extraordinarily biased towards humanoids, we would like to examine the hypothesis that these UFO occupants may be lacking in originality.

Method

We will present a comparison between the physical characteristics of three groups of subjects. The first group is a stratified random sample of both ancient and modern deities, a group which may or may not be a product of the human imagination. The second group is a random sample of the principal subjects of children's folktales, a group which is, by admission, a product of human imagination. The third group examined is a random sample of reported UFO occupants, a group whose source is unknown, but who are presumably, of extraterrestrial and/or imaginal origin. In examining and comparing some very basic anthropometric data, primarily the estimated height of all subjects, we would like to establish a goodness-of-fit between these groups through the use of a chi square. In particular, we would like to examine whether the heights of imaginal crea-

Table 2. SELECTED DEITIES LISTED BY RELIGION

Ancient Greek[a]	Shape	Height (in)	(cm)
Athena	Humanoid	74	188
Dionysus	Humanoid	86	217
Centaur	Quadruped	60	142
Sphynx	Humanoid	50	127
Zeus	Humanoid	123	313
Ancient Egyptian[b]			
Nut	Humanoid	122	311
Amon	Quadruped	151	384
Anubis	Humanoid	77	194
Osiris	Humanoid	77	194
Thoth	Humanoid	63	160
American Indian[c]			
Negafok (Eskimo)	Humanoid	68	173
Gluskap (Algonkian)	Humanoid	136	345
Hewg (Huron)	Humanoid	204	518
Delgeth (Navajo)	Quadruped	40	102
Sio Humis (Hopi)	Humanoid	66	168
Shinto[d]			
Susanowo	Humanoid	840	2134
Inari	Humanoid	80	203
Amano Uzume	Humanoid	48	122
Shina-tsu-hiko	Humanoid	480	1219
Amaterasu	Humanoid	720	1829
Buddhist (all sects)[e]			
Shamvara	10 arms	163	415
Maitreya (future Buddha)	Humanoid	146	317
Kinara	Humanoid	65	165
Yama	Humanoid	78	198
Kuan-Yin	Humanoid	84	213
Hindu[f]			
Rudra	10 arms	205	521
Vishnu	Humanoid	82	207
Yama	Humanoid	95	241
Garuda	Humanoid	150	381
Ganesa	Humanoid	122	311

[a]Pinsent, J., Greek Mythology (NY: Paul Hamlyn, 1969). [b]Ions, V., Egyptian Mythology (NY: Paul Hamlyn, 1968). [c]Burland, C., North American Indian Mythology (NY: Paul Hamlyn, 1968). [d]Eliseev, S., "The Mythology of Japan," in J. Hackin et al., Asiatic Mythology (NY: Crescent, 1963). [e]Mac Quinty, W., Buddha (NY: Viking, 1969). [f]Ions, V., Indian Mythology (London: Paul Hamlyn, 1967).

tures (folktale subjects) and reported UFO occupants are similar. In addition, we would also like to examine whether there are similarities between the heights of the selected sample of deities and UFO occupants. A close correspondence of these latter data would suggest there is statistical support for the current popular hypothesis that the gods were what has familiarly been called "ancient astronauts," or UFO occupants.

Subjects

THE DEITIES. In selecting our sample of deities, it became immediately obvious that the deities of certain religions were not amenable to the measurement of height. For example, Islam forbids any kind of pictorial representation of Allah. Christianity, likewise, was difficult to include in our sample for the reason that the number of deities are so few. We were able to find one impressive source which was specific in detailing the bodily dimensions of Jesus ("Instructors Scientifically Guess Christ's Height, Weight" 1976) but elected not to include this single instance in our sample.

Because of the variety of religions throughout the world, we decided to restrict our sample to major religions with visible deities. Furthermore, it should be noted that, while all six religions sampled are ancient in origin, four of them are still much in evidence today. The six religions sampled are: Ancient Egyptian, Ancient Greek, Shinto, American Indian, Buddhist, and Hindu. Treatments of various sects of these religions were ignored.

Five deities were selected randomly from each of six texts on the six religions. In each case, the height and humanoid characteristics of each deity were determined from contemporary depictions such as stone temple carvings, tomb murals, or paintings. Each representation of the deity, furthermore, had to show humans in relation to that deity. For example, if the human being was seated before a deity, it was possible to estimate the overall height of the seated human human by observing his knee-to-foot distance and tabulating this value from the Human Engineering Guide to Equipment Design (1972). Then, the deity's height could be measured in relation to this value. The general lack of perspective in most non-European and early artwork made the process of height estimation much simpler. In each case where the deity's height was measured in relation to a human being, a standard 10 per cent height reduction was applied to account

Table 3

SAMPLED FOLKTALE SUBJECTS†

Subject	Shape	Country	Height (in)	(cm)
Brer Rabbit	Humanoid	U. S. A.	42	107
Great White Bear	Quadruped	Norway	56	142
Sleeping Beauty	Humanoid	France	64	162
Knee-high Man	Humanoid	U. S. A.	21	54
Jack's Giant	Humanoid	England	305	775
Puss in Boots	Humanoid	France	31	80
Prince Darling	Humanoid	France	69	175
The Inchling	Humanoid	Japan	5	13
Glooscap's Rabbit	Humanoid	Am. Indian	33	84
Tom Thumb	Humanoid	Germany	6	14
Joringel	Humanoid	Sweden	66	168
Vixen	Quadruped	Russia	25	64
Flying House	Winged	Germany	10	25
Little Folk	Humanoid	Germany	21	54
Wonderful Ox	Quadruped	Africa	56	142
White Rat	Humanoid	France	11	27
Enormous Turnip	Vegetable	Russia	24	61
Judge Fox	Humanoid	Russia	67	169
Little Cadi	Humanoid	Arabia	56	142
P'ei	Humanoid	China	55	139
Giant Bird Halulu	Winged	Hawaii	149	378
Balarin's Goat	Humanoid	France	62	158
Foolish Cat	Quadruped	Japan	15	37
Hilili	Humanoid	Turkey	65	164
Giant Grim	Humanoid	Germany	191	484
Golden Crane	Winged	Japan	64	162
Silly Wife	Humanoid	England	63	161
Mountain Goat	Quadruped	Puerto Rico	34	86
Epaminondas	Humanoid	U. S. A.	44	111
Mr. Vinegar	Humanoid	England	44	112

†Huck, Charlotte S., Children's Literature in the Elementary School, 3d ed. (New York: Holt, Rinehart & Winston, 1976), pp235-43.

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for the possibility that ancient or non-American humans may be significantly shorter than the standard United States male 173.5 cm. (68.3 in.) in height. It was not at all difficult to estimate heights of humans or deities, as the Human Engineering Guide lists tables for such little-worried-about body dimensions as sitting height, head length, interpupillary distance, hand thickness, etc. Table 2 shows the selected deities listed by religion.

THE FOLKTALE SUBJECTS. Our sample of 30 folktale subjects was taken from a bibliography compiled by Charlotte S. Huck in her book Children's Literature in the Elementary School (1976). In this sampling process, only the 258 recommended folktales were considered. In every instance when a title was randomly drawn from Huck's bibliography, the original source was searched from the Children's Library at Oklahoma State University. We estimate that about 70 per cent of the recommended titles were available. When a title was unavailable, the number was discarded and another title number was randomly drawn. In each instance where the selected title contained more than one fable (e.g., Kay Hill's More Glooscap Stories: Legends of the Wabanaki Indians [New York: Dodd Mead, 1970]), a single fable and character were drawn randomly from the anthology. Although the bibliography is a rich representation of fables from many countries, the titles were all printed in the United States. Therefore, as most of the illustrators were present-day Americans, it was not considered necessary to apply the standard 10 per cent height reduction. Whenever possible, illustrations were relied upon; however, in the rare instances where only verbal descriptions were available (e.g., "The Giant Bird Halulu was as large as two war canoes..."), the height could only be estimated (see G. and P. Buffet's Kama Pua'a [Honolulu: Island Heritage Press, 1972]). Table 3 lists the 30 randomly sampled fairy-tale subjects and the country of origin.

THE UFO OCCUPANTS. Our sample of 30 reported UFO occupants was intended to contain as much original source material as possible. Hence, we relied directly upon the files of the Aerial Phenomena Research Organization (APRO), 3910 East Kleindale Road, Tucson, Arizona 85712. This research was conducted with the cooperation of the founders of APRO, Coral and Jim Lorenzen (authors of Encounters with UFO Occupants [New York: Berkley Medallion, 1976] and other well-documented books on UFOs). All UFO occupant reports were drawn from APRO files; however, those 17 cases marked with a dagger (†) in Table 4 are in the APRO "active" files. All occupant sightings are listed without regard to number of witnesses, reliability or visual acuity of witnesses, time of day, distance of witness to occupant, or conditions of illumination. Obviously, any one of these factors could have a profound effect on the reliability of the sighting; however, because we were not directly involved in debriefing any of the eyewitnesses to these sightings, we do not feel qualified to pass judgment on their

Table 4

SAMPLED UFO OCCUPANTS OF HUMANOID SHAPE

Sighting Date	Location	Height (in)	(cm)
10 Feb 77	†Tucson AZ	58	147
25 Oct 74	†Medicine Bow WY	74	188
mid Jan 77	†New York NY	42	107
21 Mar 74	†La Gunilla, Spain	79	200
21/22 Nov 73	†Joliette QB	48	122
22 Oct 73	†Hartford City IN	48	122
29 Jan 76	†near Las Vegas NV	68	173
8 Jan 74	†Springfield OH	66	168
17 Oct 73	†Falkville IN	72	183
25 Jun 74	†St Cyrille De Wendon QB	72	183
23 Apr 66	†Bingham ME	68	171
mid 65	†Lexington KY	68	171
6 Oct 73	†St Matthias QB	46	117
5 Oct 57	São Francisco, Brazil	53	135
7 Nov 57	Meridian MS	54	137
6 Nov 57	Everittstown NJ	36	91
7 Jan 74	Warneton, France	60	152
Jun 60	Globe AZ	36	91
18 Apr 61	Eagle River WI	60	152
23 Jan 64	Lynchburg VA	37	94
3 Mar 65	Brooksville FL	60	152
1 Jan 70	Cowichan Station BC	72	183
16 Dec 54	Venezuela	36	91
30 May 76	Daw Park, S.A., Australia	70	170
14 Nov 76	Hampshire, England	72	183
1 Sep 76	Huamaco, Peru	34	86
Early Oct 73	†Galveston IN	68	172
Jul 72	†Hamden CT	84	213
7 Oct 73	†Bracebridge ON	54	137
Jul 72	†Deming NM	68	172

†These sightings taken directly from APRO "active files."

Source: Aerial Phenomena Research Organization (APRO) files, 3910 East Kleindale Road, Tucson, Arizona 85712.

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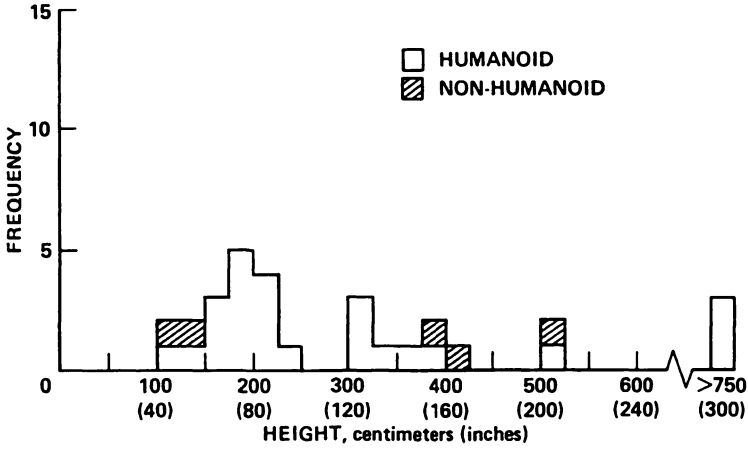
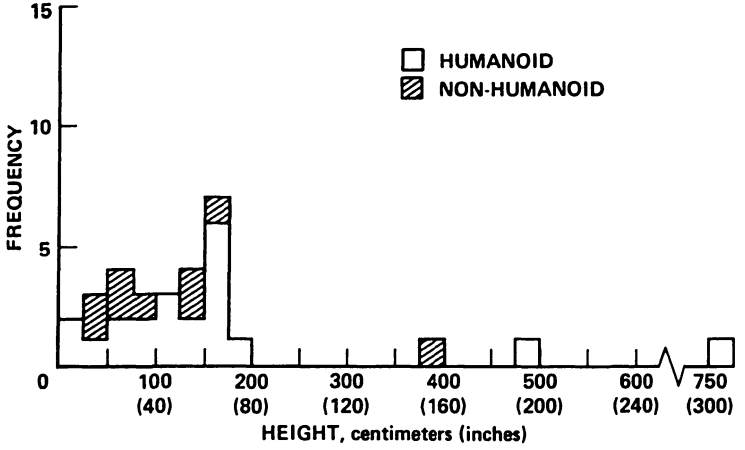
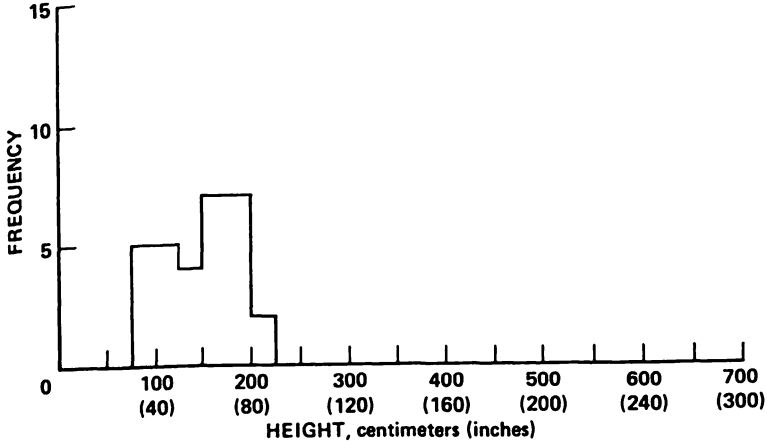
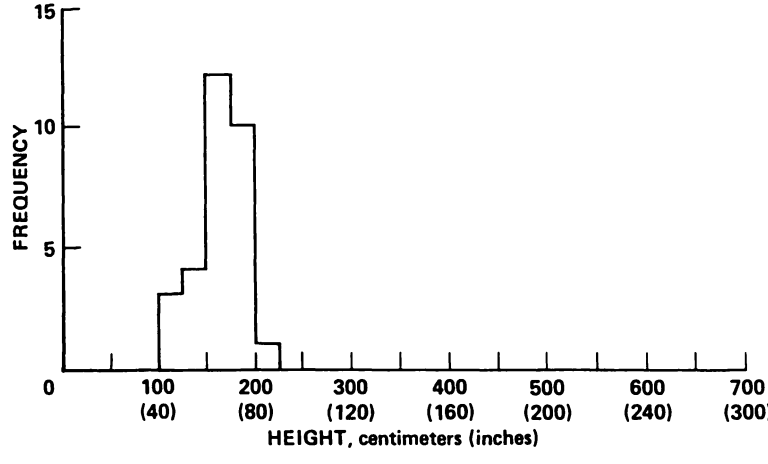
reliability. One further consideration: over half of the sightings on file were given by verbal descriptions only, so it was necessary to reconstruct the "humanoid/non-humanoid" aspect of the sighting without reference to any sketch. In instances where the UFO occupant was described as "four to five feet" (i.e., Bracebridge, Ontario, sighting, 7 October 1973) it was necessary to use the mid-point of the height (54 inches or 137 cm.). Table 4 lists the 30 randomly sampled UFO occupant encounters, along with place and date of sighting.





Top: Figure 3. Frequency distribution of heights for a stratified random sample of deities (n = 30). Bottom: Figure 4. Frequency distribution of heights for a random sample of folktale subjects (n = 30). In both figures, cross-hatching indicates non-humanoid.





Top: Figure 5. Frequency distribution of heights for a random sample of UFO occupants (n = 30). All subjects drawn were reported humanoid. Bottom: Figure 6. Frequency distribution of heights for an empirically constructed sample of U.S. males aged 4 to 89 (n = 30).

Results

The three tables, Deities, Folktale Subjects, and UFO Occupants, along with data on United States males aged 4 to 89, are presented in a series of frequency charts, or histograms. All heights are presented both in centimeters and inches. Cross-hatching indicates a non-humanoid entry. Our rules of classifying humanoids as possessing two arms, two legs, a head, and bipedal locomotion, did not, in some instances allow us to place such subjects as the Tibetian Buddhist Goddess Shamvara in the humanoid category, for she possesses 10 arms; it was tempting to classify her as a humanoid, but we did not. Again, this is an attempt to arrive at a conservative treatment of data.

Several simple chi-square tests were conducted on the frequency distributions using 25-centimeter intervals, corresponding roughly to 10-inch height increments. There was a single category for 200 cm. and above. Acting first on the hypothesis that there was no difference between the expected folktale subjects' and observed selected deities' height distributions, we determined there was a significant difference between the distributions of the two groups, chi-square (8) = 106.6, $p \leq .01$.

Likewise, testing the hypothesis that there was no significant difference between the expected folktale subjects' and UFO occupants' height distributions, we determined there was a significant difference between the distributions of the two groups, chi square (8) = 47.9, $p \leq .01$.

A chi-square test was also conducted between a hypothesized height distribution of adult United States males, using 175 cm. as a mean height and a 6-cm. standard deviation--values estimated from the Human Engineering Guide (1972). Using the UFO occupants' height distribution as the expected value and the adult males as the observed values, we again determined that there was a significant difference between the two distributions, chi square (6) = 26.8, $p \leq .01$. Finally, a chi-square test was computed between the height distribution of UFO occupants and our constructed (n = 30) sample (representative of the heights of all United States males) using data from the United States Bureau of the Census's Census of Population (1970, p265). (The ages 4 through 89 were selected on the reasoning that persons outside this range would not be walking around outside unattended.) For this test, there was barely an acceptable level of significance, chi square (5) = 11.16, $p \leq .05$.

A word of caution is in order here. The height for humans was determined using data for males. The distribution for all humans would necessarily include data for males and females of all ages and nationalities. Hence, an all-inclusive distribution would necessarily shift the mean downward and into an even closer fit with the distribution of UFO occupants.

Additionally, we had also calculated the means for each distribution, but found them too unstable in describing a measure of central tendency for the sample of selected deities. Three of the deities were estimated to be in excess of 1200 cm. (over 40 feet!) tall. Therefore, it was decided to use medians of the three groups as a more meaningful measure. The median heights for the deities was 215 cm. (85 in.); median height for the folktale subjects was 126 cm. (49 in.); and the UFO occupants' median height was found to be 152 cm. (60 in.). Median height for all United States males aged 4 through 89 years in our constructed sample was 173 cm. (68 in.).

Surprisingly, we found all UFO occupants to fit the definition of "humanoid," whereas only 70 per cent of the folktale subjects and 75 per cent of the deities could be classified as "humanoid." By way of comparison, we noted that 85 per cent of the 164 UFO occupants listed in the Lorenzen's (1976) table were classified as "humanoid." Therefore, we feel that our sample of 30 UFO occupants was extraordinarily biased on this dimension, for unknown reasons.

Discussion

Overall calculations of the chi square would indicate that all three groups are drawn from different populations. However, several observations are in order. First, an inspection of the height distributions of the deities shows a very positively skewed curve. There is no doubt that when humans represent their gods, they represent them big. Second, a comparison of the folktale subjects' and UFO occupants' frequency distributions indicates a negatively skewed distribution, tending to shift the median in the smaller direction.

Absolute values of the chi square indicate smaller values between the UFO Occupant/Folktale Subject comparisons (chi square (8) = 47.9) than between the UFO Occupant/Deity comparisons (chi square (8) = 106.6). Nevertheless,

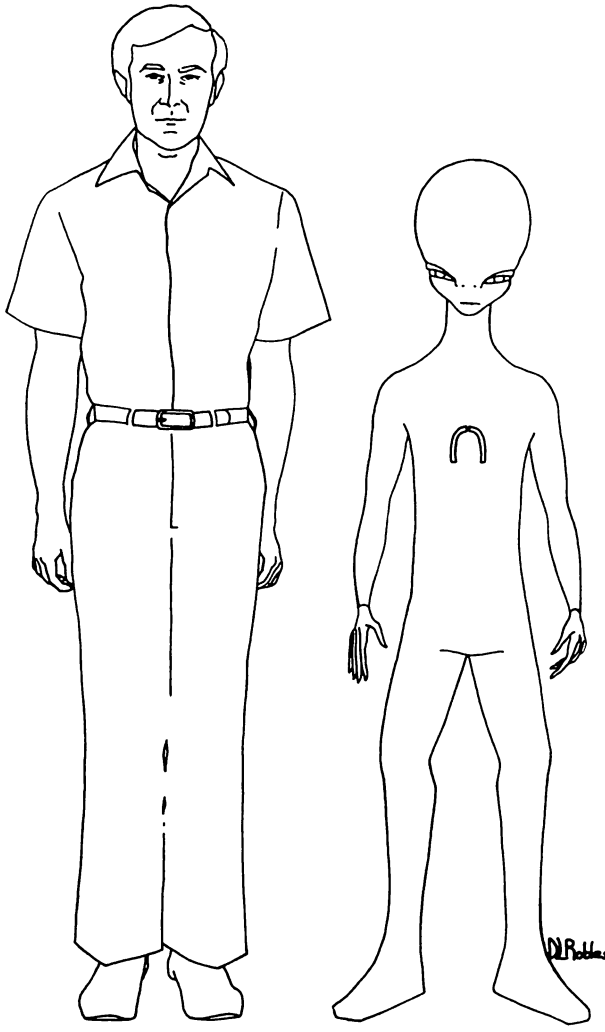


Figure 7. Composite, standard 152-centimeter (60-inch) UFO occupant in relation to a standard-height, 172-centimeter (68-inch) United States male. Illustration by Deborah L. Robles.

Figure 8. Illustration from Brer Rabbit and His Tricks, © 1967 by Ennis Rees, illustration by Edward Gorey, a Young Scott Book, by permission of Addison-Wesley Publishing Company, Inc.

there is only a 25-centimeter (10-inch) difference between the overall height distributions of reported UFO occupants and folktale subjects. Height distribution differences shrink even further when the constructed sample of males aged 4 through 89 years and UFO occupant comparison yields a chi square (5) = 11.16 $p \leq 0.05$. In our opinion, there exists a very real possibility that reported UFO encounters may be including sightings of actual, albeit young, terrestrial humans.

We have also compiled a composite drawing of a typical UFO occupant taken from our sample of 30 APRO cases. Although this composite was made mostly from verbal descriptions, at least 80 per cent of the reports showed these characteristics: large head, slim fingers, thin lips, a close-fitting silver or grey suit, wraparound eyes, and, of course, a median height of 152 cm. (60 in.). In Figure 7, this composite is shown in relation to a typical 172-centimeter (68-inch) male. In addition, although reported close encounters are rare, observers often described the UFO occupant as having some sort of insignia or other undefined object on the front of the suit. We would like, of course, to caution the reader that this composite drawing assumes all UFO occupants come from the same source, extraterrestrial or elsewhere. Otherwise, our illustration would be about as meaningful as a composite of a spider, iguana, goat, and man. We are also aware of the pitfalls in attempting to design the dimensions of an "average man" as well as the "average UFO occupant." From an anthropometrist's point of view, a pair of paints designed to fit the dimensions of the "average man" will, in fact, fit less than 5 per cent of the male population.

As another comparison, we present (in Figure 8) a very typical illustration of a humanoid folktale subject, shown in relation to a human being. Again, one does not normally encounter oversized rabbits wearing clothes and walking bipedally, but the similarities between the UFO occupant and Brer Rabbit are unmistakable.

It would be simply too easy to pass off reports of UFOs and UFO occupants as human imagination gone wild. In the first place, psychologists have not yet agreed on the definitions nor the functions of imagery. Some will call such reports schizophrenic hallucinations, while others classify them as any cognitive activity which is not verbal. At this time, we will not take sides, except to note that explanations

which attribute everything unexplainable to imagination are, of course, ultimately useless.

We have taken what we believe is a hard-data approach to one small element of the fascinating UFO phenomenon. In doing so, we hope we may have sparked some interest in a more quantitative analysis of UFOlogy. For instance, our task of analyzing the dimensions of UFO occupants would have been much easier had witnesses and debriefers been required to submit drawings as well as the usual verbal descriptions as has been suggested elsewhere (Haines 1977). UFO casebooks which give page upon page of narrative leave too much for the imagination of the reader to fill in, perhaps inaccurately. More accurate data-keeping on UFO encounters will yield less room for catch-all explanations.

In closing this chapter, we are led to conclude that the majority of UFO occupants reported are suspiciously human-like. We are not convinced that they are of extraterrestrial origin. We would, frankly, be interested in examining more closely those UFO encounters which report non-humanoid occupants. Our analysis of the physical height and humanoid characteristics reveals, on the one hand, a closer fit between the data on UFO occupants and the principal subjects of children's folktales than between the data on UFO occupants and selected deities. The height distribution data, furthermore, clearly do not support the hypothesis that the gods were "ancient astronauts." Therefore, the authors conclude that they cannot safely rule out the possibility that reports on the physical characteristics of a majority of UFO occupants may largely be a product of traditional human imagination.

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Chapter 5

WITNESSES OF UFOs AND OTHER ANOMALIES

Ronald M. Westrum

Most of the evidence we have for the existence of UFOs consists of human testimony. It is evidently in our interest, therefore, to know as much as we can about the nature of the UFO experience and about the people who have this kind of experience. In this chapter I am going to concentrate on the UFO experience and its similarity to experiences with other kinds of alleged anomalous events. I believe that by looking at experiences with anomalies in a comparative way, we can begin to form some general hypotheses about human perception of anomalous events. This may help us in sorting out the genuine experiences from the fraudulent ones and in extracting useful information from witnesses. We can then approach the question of whether, as far as we can tell, the persons who have these experiences are different from persons who do not, and if they are, in what ways.

Before we discuss anomalous experiences, however, I would like to make clear just what is meant by "anomalous" in this context. By "anomaly" I mean an event which the witness regards as having a problematical character, and which he feels he will have difficulty discussing with others. The "problem" involved is that (the witness feels) other members of society will doubt the reality of the experience (Coulter 1975). An anomalous experience, therefore, is one that is not supposed to happen: it is not included in the set of experiences which the witness's society regards as real. This "unacceptable" character gives the anomalous experience some of its unique contours. It must be kept in mind when one is trying to understand the witnesses' perceptions, thoughts, feelings and behavior during the experience.

It should be made clear that what the witness regards as an anomalous experience may well be accepted by the scientific community as real. To someone unfamiliar with the phenomena of meteorites, a stone falling from the sky might well be regarded as an anomalous experience. One evening after I had given a lecture on UFOs, a member of the audi-

ence related an experience to me which he regarded as being anomalous, and about which he had told no one. He had watched a globe of light roll into a room and roll back out again. He did not realize that he had been the witness of a well-known (if somewhat controversial) natural phenomenon: ball lightning. For him the experience was anomalous.

It is also important to stress that not all witnesses, for instance, regard UFOs as anomalous. As we will see, some witnesses believe "UFO" experiences are perfectly normal, and do not feel that the experience is problematical. There even may be a strong expectancy of seeing UFOs. Accordingly, we should expect to find perceptual phenomena associated with such experiences to be different from those we find in the case of witnesses who feel that they are having an anomalous experience. I propose to call these two types "low-threshold" and "high-threshold" UFO experiences, respectively. The "normal" or low-threshold UFO experience requires a different treatment from the high-threshold one. Let us deal with it first.

"Normal" UFO Experiences: Low Threshold

As I have indicated elsewhere (Westrum 1977), the concept "UFO" is a transmissible one, and once enough persons are believed to have had a UFO experience, having one one's self may no longer be a deviate act. Furthermore, once a set of characteristics of the "UFO experience" becomes well-known, it is possible to imagine having such an experience in advance of the fact. There may be an actual set in favor of having a UFO experience. Certainly when persons drive to an area where sightings have been reported and expect to see UFOs, we should not be surprised if people perceive them with little difficulty, since the perceptual threshold is so low. Nor should we be surprised if persons who belong to religious groups in which UFO beliefs play a dominant role report a high proportion of UFOs. *

Such readiness to make UFO observations is likely to result in a considerable number of misidentifications. In what is currently the most extensive study of UFO sightings

*My colleague David Stupple, who has studied such a group, reports a very high incidence of their labeling ordinary night-sky phenomena (stars, airplane lights) as UFOs.

reported to the Air Force, for instance, only 21.5 per cent of the sightings remained unknown after investigation (Davidson 1971, p129). The remainder turned out to be astronomical phenomena, aircraft, balloons, other natural phenomena, or hoaxes. The study, by Battelle Memorial Institute, covered only the years 1947 through 1952. More recent data, compiled by me from the first 14 issues of the International UFO Reporter [published monthly by the Center for UFO Studies, 1609 Sherman Avenue, Suite 207, Evanston, Illinois 60201], which gives each month the number of identified and unidentified flying objects reported as UFOs, shows an even smaller percentage of unknowns for 1976-1977. For a total of 1117 sightings described as UFO sightings, only 9 per cent remained unknown after investigation (Hynek 1976-1977). This clearly suggests the effect of a low threshold for sightings.

A considerable folklore has grown up around UFOs, as I discovered to my surprise in the course of making investigations of UFO sightings. For instance, one rural witness told an investigator matter-of-factly that "they say that when you get within a quarter mile of 'one of them' your CB [citizen's band radio] don't work." Now this is a very precise piece of knowledge, whatever its reliability, and the wide circulation of such "facts" throughout society is making "naive" UFO witnesses more scarce. This folklore tends to set up an expectation that certain kinds of things will be seen or will happen during a UFO experience and this affects not only what the witness feels he ought to relate to others but also what the witness remembers as happening. I suspect that many experiences which would previously have been labeled in a different way are now labeled "UFO" as a result of stereotypes.

A similar example is a story told me by a 13-year old boy about a "bigfoot" sighting:

> I was up on _____ Lake in a rowboat coming into shore. Just as I got to the shore I smelled this real strong smell of sulphur. Sulphur! I said. I knew what that meant! So I rowed out of there as fast as I could, and sure enough, bigfoot came out on the shore.

I am virtually certain that this story is a fabrication. The important point is that, in advance of the sighting, this youngster "knew" that bigfoot and the "smell of sulphur" (doubtless

sulphur dioxide is what was meant) were related. This kind of folk knowledge of monsters lowers the threshold for perceiving them. In some primitive societies, in fact, the threshold may be so low that a fairly complete experience may take place without the "monster" ever coming into view! (Hallowell 1951).

The basic point in regard to these "normal" UFO experiences (which may well include some that investigators would like to study) is that they do not present the witness with the dilemma that will be explored in Chapter 8, viz., having an experience which one feels will not be accepted as real by others. Since the experience is considered to be less problematical, there is also likely to be less reality-testing on the part of the witness, who does not need to prove to himself that his senses are working correctly. This may be unfortunate for the investigator, for many of the details of interest (as well as the essential correctness of the sightings) are noted in the course of such cognitive testing.

The Anomaly Experience: High Threshold

More interesting for our purposes is the case in which the observer is not cognitively prepared for sighting an anomaly. This lack of preparation is unfortunate in one sense, in that the initial surprise often prevents the use of a camera or the prompt summoning of more witnesses, particularly when the sighting is of short duration. But it also has some interesting cognitive consequences.

One of the most common phenomena in an anomaly experience is the tendency for the anomaly to be perceived initially as something else. It is not unusual for a sea-serpent sighting to begin with the object's being perceived as a log, a rock, or an overturned boat. The sighting of a sea-serpent by the Rev. Donald Maclean will serve to illustrate this:

> ... I saw it in June 1808 not on the coast of Eigg, but on that of Coll. Rowing along that coast, I observed, at the distance of about half a mile, an object to windward, which gradually excited astonishment. At first view it appeared like a small rock. Knowing that there was no rock in that situation, I fixed my eyes on it close.

> Then I saw it elevated considerably above the level of the sea, and after a slow movement, distinctly perceived one of its eyes. Alarmed at the unusual appearance and magnitude of the animal, I steered so as to be at no great distance from the shore ... [Oudemans 1892, p151; emphasis added].

First the object is perceived as a rock, and it is only in the light of other knowledge that, this preliminary identification having been made, it is rejected. Another example:

> The object looked like the top of a parachute canopy, he told me; it was white and he thought he could see the wedges of panels. He said that he thought it was moving across the ground a little bit too fast to be drifting with the wind, but he was sure that somebody had bailed out and that he was looking at the top of his parachute. He was just ready to call the tower when he suddenly realized that this 'parachute' was drifting across the wind [Ruppelt 1956, p161].

Again, a preliminary identification is made, but it is rejected in the light of additional data. The narrative is taken, of course, from the beginning of a UFO sighting. Another example comes from my own files:

> The owner of a local used-car business was visiting the home of his father in a rural area in October 1965. He had just pulled into the driveway with his 14-year old daughter when he noticed a lighted object in the sky. He first thought it was an airliner. He rejected this idea when he noticed that the object was not moving. Was it a helicopter then? No, because it made no noise. It seemed to be a large disk about 150 feet in diameter. After eight or ten minutes, it went off slowly to the northwest.

What these examples have in common is the change from relatively routine perceptual objects to more exotic ones. This movement from routine to exotic perceptions was reported by Carrouges (1963, pp188-95) in his discussion of some of the French 1954 UFO sightings. It was later described by Hynek as "the escalation of hypotheses" (1972, p13). Interestingly enough, it is exactly what we would expect on the basis of at least one theory of perception.

In a classic paper Bruner (1957) describes the process by which we go about recognizing something. He argues that we carry around in our heads a series of categories of things we might encounter. Each of these categories carries with it a certain expectancy related to the probability of actually encountering the object; the more probable events carry greater expectancies. In the process of recognition, we use cues to match our perceptions to these mental categories. Naturally the categories with greater expectancies will tend to be matched to our perceptions first, and it is only after "routine" categories have been found inadequate that a match with exotic categories is likely to happen. Thus, for an unprepared witness, we would expect the person to have difficulty recognizing an anomaly as an anomaly. He would first tend to see the stimulus as something else, as in the examples mentioned above.

It needs to be emphasized that while this pattern is the one that we would expect on the basis of Bruner's theory, and that many anomaly sightings seem to conform to it, the mere existence of such an escalation does not prove that an anomaly is involved. In the first place, anomaly accounts are frequent enough so that this pattern is well known to many people in society who would wish to fake anomaly encounters. The mere occurrence of this pattern in an anomaly report is therefore not proof that there was an actual escalation of hypotheses. Its absence, on the other hand, strongly implies that the witness for some reason had a high expectancy of seeing whatever anomaly was in question. The reason may be perfectly legitimate. Persons who search for Bigfoot, for instance, are likely to have a very low threshold for perception of the creature, and in some cases it may be the first hypothesis they use rather than the last.

Where no such reason is evident, however, one may well question the motives of a person involved in an alleged anomaly encounter where no escalation of hypotheses has taken place. The value of such a sighting is also questionable in terms of details the witness alleges to have observed. If only a few cues were required to establish that the witness was observing a UFO, for instance, probably the witness had a prior idea of what a UFO is supposed to look like. This is most unfortunate, because it means that the details the witness remembers later are very likely to conform to this stereotype. The witness will see what he feels he is supposed to see, and will not critically scrutinize the object he is looking at with the kind of attention one would wish. The

more ambiguous the stimulus, the stronger the influence of this stereotype is likely to be.

Discriminating the Anomalous

One of the questions that frequently arises when reports of anomalies are discussed is "How did the witness know that it wasn't just something ordinary?" This question is not one to be shrugged off, since (depending on one's set of data) anywhere from 80 to 95 per cent of UFO reports turn out in fact to be the result of something already known to science. For this reason Hynek defines as a UFO sighting only one which remains puzzling after competent investigation has been conducted (Hynek 1972, p24). But one is likely to feel more at ease when the observer himself is sophisticated in the kinds of discrimination necessary to separate the truly anomalous from the merely unusual. I would like to call such an observer a "high discriminator."

High discrimination is usually an issue in anomaly sightings precisely because the observers are not high discriminators. When an expert comes to evaluate the sighting later, not uncommonly the report is considered worthless, since it was made by an untrained person who would not be able to tell whether what was seen was truly anomalous or not. An interesting example is provided by the sea-serpent sighting from H. M. S. Osborne in 1877 (Gould 1930, pp154-72).

In this case, some officers of the Royal Yacht Osborne observed a large and apparently anomalous sea-creature off the North coast of Sicily. The report, sent to the British Admiralty, was commented upon by several experts, including Frank Buckland, Sir Richard Owen, and Henry Lee. Owen, who had written a "Manual of Zoology" for the Admiralty Manual of Scientific Enquiry in the wake of an earlier sea-serpent sighting (Gould 1930, pp165-6), was one of Britain's most eminent scientists. He was pessimistic that the observers could have made useful observations:

> Remarks thereon by observers not conversant with natural history, and so situated, preclude the formation of any opinion worth recording of the nature of the object or objects causing the phenomena as interpreted by the foregoing witnesses [Gould 1930, p165].

Owen was arguing that the officers of the Osborne could not have acted as high discriminators. He may have been correct. Yet whether a natural scientist or a naval officer would be a better observer on such a matter could well become a moot point.

As far as UFO observations are concerned, the importance of witnesses' sophistication in meteorology and astronomy ought not to be underestimated. I have had a witness of high education point to the star Arcturus as an anomalous object in the sky. I myself once watched a strange light bobbing on the horizon. This turned out to be a porch light, as I determined by training a telescope on it; but someone unfamiliar with the autokinetic effect might well have believed that they were witnessing a genuine anomaly. (In fact the persons who were with me were not entirely convinced even after I trained the telescope on the object). The frequency with which Venus is mistaken for a UFO is well known.

The belief that one can act as a high discriminator is also likely to affect one's willingness to report an anomaly sighting. A survey by the University of Colorado UFO project found that the most frequently mentioned reason for nonreporting was that the object sighted "was probably something normal that just looked funny for one reason or another" (University of Colorado 1968, p228). The credibility of testimony may depend on the public perception of an observer as a high discriminator. Astronomers are more likely to be believed when they say that they have seen a UFO than is someone without technical training. * A sense that one's anomaly sighting will be believed is thus likely to figure in the decisions to report it.

Critical Checks

Precisely because the perception of an anomaly is

*In view of the higher credibility and discrimination of astronomers--and the potential value of their sightings--it is ironic that only 11 (18 per cent) of the 62 observations in a survey administered by Sturrock were reported to the authorities or the press (1977, p3). This is not much higher a value than the 13 per cent reporting rate for sightings in the general population (University of Colorado 1968, p226), whose sightings are likely to be of much lower reliability.

problematical, it is not surprising that many witnesses feel obliged to make some sort of check on what they are seeing during the experience. These critical checks are valuable for two reasons. In the first place, they confirm to the witness that what is being looked at really is anomalous. Second, they often provide details which will be of interest later to the anomaly researcher. The presence of such reality-testing in an anomaly report is therefore a good sign that the witness has actually seen what he claims to have seen. The absence of these critical checks makes the sighting considerably less valuable and perhaps even suspect: why was no reality-testing done?

In his study of the public's reactions to Orson Welles' "Invasion from Mars" broadcast of 1938, Cantril found that belief in the "invasion" was influenced by lack of what he called "critical ability" (Cantril 1966, p112). Some persons made critical checks on the authenticity of the broadcast, either by considering the internal evidence of the broadcast itself or by other, external kinds of checks. These persons, Cantril felt, had the ability to criticize their own perceptions. Those without critical ability, however, either made no checks at all or ineffective ones. They believed that the play was indeed a real news broadcast, that the Martians were actually landing--and behaved accordingly. The basic point which Cantril's analysis conveys is that failure to make such critical checks can result in a facile acceptance of messages that are incorrect. When one has a perception or receives a message which is anomalous, it requires some further reality-testing. If such testing does not occur, one may well question belief in the perception or the message.

Some examples will show how critical checks can be brought to bear on an anomaly sighting.

In 1908, Vice-Admiral R. H. Anstruther observed a strange creature shoot out of the water while he was standing on the bridge of H.M.S. Caesar:

> I had never seen such a creature before in all my long experience at sea, so I hastily called the navigating officer, who was at the standard compass, to come to my end of the bridge in case the reptile, or whatever one may call it, should show itself again [quoted in Heuvelmans 1968, p365].

Calling for additional observers is a common form of perceptual check in anomaly sightings. Having others observe the anomaly not only makes one more certain of what one is seeing, but also provides a more convincing case should one's sighting be questioned. Single-person sightings, as discussed in Chapter 8 on reporting UFO sightings, are less credible than those with multiple witnesses.

Other perceptual checks refer to the anomaly's properties as a phenomenon or to its context. F. W. Kemp, an officer of the Provincial Archives of British Columbia, saw a sea-serpent near Chatham Island. To make sure he had correctly perceived the creature's length, he measured some logs against which he had been able to compare the creature, and found that he had been correct (Heuvelmans 1968, p442). In another case, a radar operator received a call about a strange light in the sky. When he saw the light himself, he checked his perception against images on the radarscope:

> I did not think anyone would believe me, so I went inside the building and relieved the radar scope operator. I found a target at 123°, 53 miles. After that it appeared as a permanent echo [Hynek 1953, p313].

In still another case, which occurred during the 1965 UFO "flap" near Exeter, New Hampshire, Ron Smith, a high school senior, had a UFO sighting. Smith was riding with his mother and his aunt when their car was "buzzed" three times by a UFO. Frightened, Smith started driving back into Exeter:

> I got part way back--all the way to Front Street --when I came to my senses. I wanted to go back to make sure I wasn't seeing things. We did go back. And sure enough, it was in the same spot again. It passed over the car once, and that was the last time I saw it [Fuller 1966, p64].

These critical checks do not always result in confirmation that an anomaly is being sighted. Carrouges, in a section of his book entitled "The Reduction of Pro-UFO Illusions" (1963, pp189-90), showed that in many cases perception of a UFO gave way to more routine perceptions, just as in other cases the reverse had occurred. Cases in which what appear at first to be anomalies turn out to be normal objects after a bit more watching, a change of perspective,

or additional knowledge are not rare; they are often brought forward by those who wish to demonstrate that anomaly sightings are the result of optical illusions or the power of suggestion (e.g., Menzel & Taves 1977). The importance of the correct observing environment and above all of time to make the checks should not be underestimated, since the emotion provoked by an anomaly situation may take some time to subside. (See the comments of Cantril [1966, pp139-49] on the inhibition of critical checks in the listening situation in regard to the "War of the Worlds" broadcast.)

During the American sea-serpent sightings of 1819, James Prince, a district marshal, described his own emotions during an observation:

> The first view of the animal occasioned some agitation, and the novelty perhaps prevented that precise discrimination which afterwards took place ... after being accustomed to view him, we became more composed ... [Bigelow 1820, pp154-7].

In regard to the same sighting, Samuel Cabot said:

> I was now satisfied that the Sea-Serpent was before me and after the first moment of excitement produced by the unexpected sight of so strange a monster, taxed myself to investigate his appearance as accurately as I could [Bigelow 1820, pp159-61].

In short-duration anomaly experiences, this critical period in which one can step back, as it were, and give the phenomenon a second look, is absent. Critical checks can take place only after the sighting is over.

Group Influences on Perception

A large fraction, if not the majority, of anomaly experiences take place while the individual is part of a group. An interpersonal process of communication will therefore parallel whatever thought processes are taking place during the sighting in the heads of individuals. Yet relatively little consideration of the role of the group in influencing perceptions of an anomaly has taken place, except for vague references to the effects of suggestion. In particular, there has been no study of the role of the group during anomaly sight-

ings which has been based on interviews and which attempts to reconstruct the actual process. I would like to suggest, however, that when such a study is done it will show, first, that many of the phenomena reported about an individual's mental processes during anomaly experiences occur as a group process (e.g., the escalation of hypotheses) and, second, that the group just as often imposes critical checks on emotional observers as it influences individuals' perceptions through suggestion. For the present I can only suggest that this factor of group influences be kept in mind when considering the nature of anomaly experiences.

Who Are UFO Sighters?

Having briefly considered the nature of the experience, we can now turn our attention to the people who have these experiences. What kind of people see UFOs?

To begin with, it is important to consider the possibility that those who have low-threshold experiences are different in some systematic way from those who have high-threshold experiences. In other words, the question is not simply one of "Who sees UFOs?" but rather "Who sees what kinds of UFOs?" It also may be the case that persons who have had close encounters with UFOs are different in some way from those who have merely seen UFOs from a distance.* With these possibilities in mind let us consider some data about UFO "sighters."

We have basically two types of information about sighters. The first is from large public-opinion polls and is useful for contrasting sighters in general with the rest of the population. The second comes from studies of UFO sightings investigated by UFO groups or collected from press accounts, and tends to give considerably more detail about the type of UFO experience involved, the character of the witness, and so forth. Both of these types of information are useful, but for quite different reasons. The opinion polls offer us some relatively reliable measurements on a variable of small importance; the studies of sightings deal with important variables but unsystematic data. There are a great many questions left unanswered by both of these sets of data.

*A somewhat similar line of reasoning is presented in Chapter 12 regarding differences in UFO drawings by eyewitnesses and non-eyewitnesses--editor's note.

Let us take the opinion-poll data first. The most recent data are from the Gallup poll of November 1973. This survey showed that about 11 per cent of the adult population felt they had seen a UFO (Gallup 1973). According to the raw data I obtained from the Roper organization, persons who responded "yes" to the question "Have you, yourself, ever seen anything you thought was a UFO?" differ in significant ways from the rest of the sample. Sighters are no more and no less educated than non-sighters, they seem to work at the same jobs, and have the same religious affiliations. Males, however, are more likely to be sighters than females, and black males are twice as likely as black females to be sighters. (The actual percentages for sighters are: white males 11.2; white females 9.3; black males 13.8; and black females 6.3 per cent. The figures for blacks are based on a total of 159 respondents.)

Place of residence seems to have little significant effect. While those living in urban places with a population over 500,000 seem to have decidedly fewer UFO sightings (average 6 per cent), otherwise the rate does not show a clear trend, although the highest rate is for towns of population 10,000 to 25,000 (21 per cent). In particular, rural areas, which one would expect to be high on the basis of UFO literature (see, for example, Vallee & Vallee 1966, pp159-60), have an average of 11 per cent, which is the same as the population as a whole.

By far the strongest factor seems to be age. In Table I, one can see that the rate of UFO sightings seems to decline with increasing age. This finding is particularly interesting in that earlier polls in 1966 and 1968 did not detect any effects due to age (University of Colorado 1968, p224).

In an analysis of the same data, but using a somewhat different definition of UFO sighter,* Warren (1975) found that

*Warren's definition of a UFO sighter includes three points: a "yes" answer to the question about sighting, a belief that UFOs are real objects, and a belief that people like ourselves are living on other planets in the universe. Only if these three points are met does Warren consider the respondent a true UFO sighter (Warren 1975, p22). This eliminates 40 per cent of the persons in the total sample who said they had seen a UFO.

Table 1

RELATION BETWEEN AGE OF UFO WITNESS AND NUMBER OF UFO SIGHTINGS

Age Group	Percentage of All Sighters	Number of Sighters	Number of UFO Sightings (Total Is 1443)
18-21	20%	22	110
22-29	14%	38	267
30-39	13%	31	244
40-49	8%	21	266
50-59	10%	25	245
60-69	6%	10	177
70-91	7%	10	134

UFO sighters tended to be persons of higher status: the higher the status, the higher probability of being a sighter. This contradicts his "finding" from the 1966 Gallup poll data that UFO sighters tended to be status inconsistents (Warren 1970), and therefore marginal persons.

What can we make of all this? I believe that the finding on the effect of age can be explained if we are willing to assume the declining rate of UFO sightings with increasing age reflects different beliefs and attitudes. It is worthy of note that the 1966 Gallup poll which asked whether the respondent had ever seen a "flying saucer" evoked, by comparison, only a 5 per cent "yes" response (Gallup 1973). It may be that the number of sightings of UFOs has vastly increased since 1966; but it seems more likely that what has changed is the manner in which perceptions are interpreted. The higher UFO sighting rate of 1973 could well be due to a lowering of the threshold for a UFO sighting. More people now know what a UFO is supposed to look like. Accordingly, fewer cues are now needed to identify something as a UFO.

Young people, however, are more likely to have changed their perceptual interpretations than older people. In the Colorado poll of 1968, there was no difference in the sighting rate for different ages. In terms of opinions and beliefs, however, pro-UFO attitudes were negatively correlated with age (University of Colorado 1968, p240). It is not difficult to believe that these attitudes could translate themselves into perceptual experiences in the years since 1966 and that those with the most pro-UFO attitudes should have

the most experiences. Or perhaps what is involved is the reinterpretation of past experiences in the light of more "knowledge" of what UFOs are supposed to be like. An individual may feel, on the basis of newly acquired information, that a previous experience fits into the necessary contours of a "UFO" event.

In any case, it seems probable that the increase in the rate of UFO sightings across the board represents an increase in low-threshold sightings. A change in attitude or perception could quite easily increase the number of low-threshold sightings. It would take considerably more, one suspects, to change the number of high-threshold sightings.

Warren's finding of a positive association between social status and UFO sightings can perhaps be explained by his somewhat stringent definition (footnote, page 101) of what constitutes a UFO sighting. Two of the elements in his definition, both attitudinal, are positively related to measures of social status. Otherwise it is hard to understand why high social status and UFO sightings should be related, since as I indicated previously, UFO sightings are not related to education or occupational status.

It is interesting to compare the frequency of UFO sightings in the general population with a "high discriminator" group like astronomers. Already in 1952, Hynek had conducted an informal survey among 45 astronomers vis-à-vis their UFO opinions and experiences (Hynek 1976, pp268-84). He found that five (11 per cent) had had "sightings of one sort or another." More recently, Sturrock (1977) conducted a survey of the UFO opinions and experiences of members of the American Astronomical Society. About half (52 per cent) of the mailed questionnaires were returned, yielding 1356 responses, quite good considering this type of survey. Sturrock found that 62 (5 per cent) of his respondents indicated that they had witnessed or obtained an instrumental record of a phenomenon they could not identify which might be related to the UFO phenomenon. Considering a higher ability to discriminate and probably a higher threshold for interpreting a phenomenon as anomalous, this figure is quite high. Sturrock has also included in his report descriptions of all the sightings involved, a most useful feature. Most of them, as one would expect, appear to be high-threshold events. Nonetheless, few of the witnesses considered very seriously the possibility that what they saw was an extraterrestrial craft.

By contrast, we know very little about the nature of the sightings made by the respondents to the Gallup poll. The hypothesis that they represent low-threshold experiences, while well-founded, is still a speculation. It does seem likely that the negative correlation with age is due to a higher flux of information and/or more persuasive accounts of UFO experiences among younger persons, resulting in a change in the way perceptual events are interpreted. But we really have no way of knowing if the sometimes quite impressive events reported in the media are related to the same demographic variables or not.

Studies of UFO Sightings

In the opinion polls one started with a population (seemingly) unrelated to UFOs, then studied the characteristics of the UFO reporters in that population. Here we will start with UFO reports and try to infer something about UFO sighters from the nature of the reports we get. It is obvious that we cannot assume that reporters are a random sample of sighters. While I suspect that sociological factors (except for location) are relatively weakly related to high-threshold UFO experiences there is every reason to expect they would be related in some fashion to the willingness and ability to make a report about such experiences. In particular, literacy, articulateness, sophistication with communication channels and credibility are all positively related to socioeconomic status, and it would not be surprising if persons of higher status, once they have had a sighting, are more likely to make a report. This was the case with sea-serpent witnesses (Westrum 1978), although, of course, sea-serpent reporting involves a much longer historical period.

The largest known collection of UFO cases is Saunders' UFOCAT* (1975), which now includes over 80,000 reports. Although this is an extremely large number of cases, it is not a random or systematic sample, but represents many different types of data sets. Unfortunately, relatively few analyses from this data have so far been published.

*This term stands for UFO Catalog, a computerized file of reports of unidentified flying objects begun in 1967 by Dr. David R. Saunders and now maintained by the Center for UFO Studies.

Saunders has used UFOCAT data to assign a reporting rate to each county in the United States. He has then compared (via stepwise multiple regression) this reporting rate with other demographic characteristics of the same counties. He has found that (as one might expect) counties with more people tend to generate more reports. He has also found, as Vallee predicted, that counties with a large amount of area tend to have more sightings. But second only to population as a predictor is the educational level of the county's residents: the higher the level of education, the more reports. As we have noted above, however, there is good reason to attribute the high reporting rate to the reporting process rather than to a high level of sightings.

One interesting feature does emerge from Saunders' analysis. For the category of high-strangeness reports in general, demographic variables have much less predictive power; and for "interaction" cases, only population carries some predictive power, education none at all. It would seem that education is most important where UFO events of relatively low strangeness (and probably low-threshold) are involved. This may indicate that more educated people may be more willing to interpret strange events in the sky as anomalous, since they are more confident of their ability to act as high discriminators. By contrast the high strangeness events need relatively little education to interpret, since their anomalous character will be apparent even to uneducated persons.

In a much more restricted study of 95 "landings"* in France Carrouges (1963, pp73-9) found that most of the cases took place in rural or sparsely populated areas. All of the cases in his study came from the French wave of September-October 1954 (Michel 1958). He found that in spite of the rural or semi-rural situation of most sightings, about a third (37 per cent) of the witnesses had white-collar or professional occupations. Furthermore, nearly three-quarters (73 per cent) of all witnesses were adult males. Carrouges concluded that these factors argued against a pathological interpretation of the sightings.

*A "landing" case is one in which the UFO is seen on or near the ground. It is very similar to Hynek's (1972, p86) definition of a "close encounter," in which the estimated distance from witness to object is less than 500 feet.

In an expanded study which included not only the 1954 French data, but landing cases in the same year outside France, Vallee came to very similar conclusions. "In the 1954 landings, the spectrum of witnesses is typically rural, with a normal proportion of men, women, and children. Most witnesses held steady jobs, often positions of social responsibility, and observed an unusual phenomenon while engaged in their usual occupation and in their usual environment" (Vallee 1969, p66). Vallee's conclusion regarding the gender ratio contradicts Carrouges' study, but no explanation for this discrepancy is evident.

A similar study was completed by Vallee and Olmos (1972) on 106 "landing" cases in Spain. Again, the conclusion of the authors is that the witnesses tended to be normal persons, who had UFO experiences in generally rural settings. About one-third of the witnesses (32 per cent) had white-collar or professional occupations, and the sighting took place while the witnesses were engaged in normal activities. They give distributions for age, occupation, activity, and the make-up of groups. Unfortunately, these distributions frequently cover only a fraction of the cases in their study, and they are not compared against a distribution for the Iberian population serving as a control. Hence their conclusion that the distribution of characteristics is normal is difficult to verify. Nonetheless there is nothing about the data they present to imply that the witnesses were pathological or otherwise unusual.

In a study of 334 "humanoid" cases by Pereira (1974) it was found that most of these "close encounters of the third kind" had taken place in rural areas. According to a rough occupational breakdown, about one-third of the witnesses (29 per cent) belonged to white-collar occupations. About 83 per cent of the cases involved adult witnesses. No sex ratio was indicated.

These four close-encounter studies all share the same virtues and the same faults. On one hand, they tend to be very explicit about the nature of the UFO sightings. Vallee (1969) even gives a brief synopsis of each case; they are too short, however, for one to check his conclusions. They also produce a certain amount of numerical data (although seldom exactly the same variables). On the other hand, the analysis of the data, while numerically precise in some cases, is statistically naive. No control distributions are used to help decide whether the figures obtained are really "normal." Nor

is the pattern which would show "pathology" made precise; the data are simply presented, and since they do not seem pathological to the author, he concludes that no pathology is involved. There is no mention of studies, for instance, which show that social class is inversely correlated with mental illness (see Nettler 1976, pp59-62), and that the (apparently) class-balanced character of the samples might be a good sign. Nonetheless, one must admit that the data produced seem to indicate that witnesses are normal persons.

In this regard we are fortunate to have the testimony of a psychiatrist who has examined a number of UFO witnesses (Schwarz 1968). In the course of treating neurotic patients over the years, Schwarz found that many had had UFO experiences. He concludes, however, that their UFO experiences are unrelated to their neurotic problems, and further indicates that UFO experiences are much more rare among psychotics (see Chapter 6). Schwarz's conclusions contradict what many people believe, including some scholars (see Gordon 1971, Grinspoon & Persky 1973): that persons who have UFO sightings are mentally ill or that the experiences are of an hallucinatory nature. In spite of the lack of evidence for the "mental illness" theory as an explanation for UFO sightings, we can expect it to be persistent. It has shown considerable staying power so far; it is unlikely to go away.

In regard to the theory that UFO sightings are due to some sort of mental illness, it is interesting to examine the number of witnesses to each sighting. In Chapter 8, on reporting, I will suggest that single-person sightings are underreported. Here, however, let us see what proportion of the reported sightings were multiple-witness.

Of the UFOCAT cases which indicate the number of witnesses (23,972 cases), only 37 per cent involve a single witness. Of course, UFOCAT includes a large number of low-strangeness cases. When we consider "landing" cases, we find that a much larger proportion of cases are single-witness. In the study of Carrouges (1963, p74), 46 per cent of the cases were single-witness; in Vallee (1969, p66), 49 per cent of the cases were single-witness; in the Vallee and Olmos study (1972), 41 per cent of the cases were single-witness; and in the Pereira "humanoid" study, where the cases were of very high strangeness, 61 per cent of them involved a single witness (1974, p31). It therefore appears that the higher the strangeness of the sightings, the smaller

the number of observers. Exactly what this means is not clear. It might suggest that more impressive performances are played for smaller audiences, possibly due to greater control of the situation. On the other hand, at least one humanoid case had 38 witnesses (Pereira 1974, p31); so the tendency for high-strangeness cases to be single-witness is only a trend, not an absolute.

Opportunity for Observation

While not conclusive, I believe that the 1973 Gallup poll offers some evidence that low-threshold UFO experiences are related to sociological factors. I would like to speculate, however, that high-threshold experiences are not related to sociological factors--except for those factors which determine one's opportunity to observe. Vallee and Olmos remark that "in nearly two thirds of the cases, the witnesses were driving" (1972, p11). In the study by Pereira (1974, p30) of "humanoid" cases, he found that of 230 cases, 76 (33 per cent) occurred in open country and 62 (27 per cent) occurred on roads. In landing cases, as we have observed, rural areas predominate. Could it be that those who become high-threshold witnesses are those who happen to be at the right place at the right time? Poher and Vallee (1975, p10) note that "landing" cases are infrequent during the day and reach a maximum at about 9:00 p.m. Could those who observe such landings be a random assortment of persons who are up and about at this time in sparsely populated areas? Similarly, a re-analysis of the data in Sturrock (1977, p17) shows that members of the American Astronomical Society who were night observers were three times as likely as non-observers to be "UFO" witnesses. * This finding suggests that it might be fruitful to examine other groups in the population, to determine whether opportunity to observe is related to UFO sightings among them.

We cannot conclude that the correlation of opportunity for observation and sightings proves that UFOs are real, although the finding is suggestive. The most that can be said at this point is that those who are more exposed to the stim-

*Of amateur night observers, who are more likely to be out in the open than at the small end of a giant telescope, 10 per cent were witnesses of anomalous events (compared to 6 per cent for professional night observers).

uli to which people attribute the concept "UFO" have more sightings; and that these are persons who are likely to be up and about in sparsely populated areas at night.

Conclusion

This chapter has argued that UFO sightings are related to social factors. The kind of social factors that are relevant, however, depend on the nature of the UFO experience. Those in which there is a low-threshold, I speculate, are inversely related to age. Furthermore, the quality of these experiences, in terms of the probability that something anomalous is involved in them is likely to be low. Those with a high threshold, such as landing cases, on the other hand, are correlated with the observer's presence in the stimulus situation--in rural areas and at night. In high-threshold cases, furthermore, the kind of perceptual phenomena that many witnesses report is what we would expect if they were in fact observing an anomalous phenomenon. While this is far from proving that they have observed anomalous phenomena, it certainly argues against the hypothesis that sightings are due to hallucination or mental illness. Those who wish to believe that UFOs are observed only by the mentally ill or by hallucinating persons must now assume the burden of proof to demonstrate this. In the meantime perhaps we can recognize that high-threshold UFO cases deserve serious consideration: if they do not represent contacts with non-human technology, then what are they?

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Chapter 6

PSYCHIATRIC AND PARAPSYCHIATRIC DIMENSIONS OF USOs

Berthold Eric Schwarz

Relationship Between UFO Witnesses and Mental Illness

Until recently the communications media attributed most UFO sightings and contacts either to faulty interpretation of well-known phenomena, to defects in perception, or--most commonly--to psychopathological disturbances in the witness. Thus, the media have attributed UFO events to hallucinations, illusions, and delusions. But these statements were not made by psychiatrists.

What psychiatrists do have to say about UFOs is not easy to come by. Despite psychiatric studies on a wide variety of other subjects, there are few on the subject of UFOs. In fact, a formal search of the psychiatric literature conducted by Medline, a data base maintained by the National Library of Medicine containing references to approximately half a million citations from 3000 medical journals from 1964 to June 1976, revealed no articles by psychiatrists with "UFO" in the title or list of key words, except for those mentioned below.

In pursuing the question of whether UFOs are witnessed chiefly by mental patients, in 1968 I interviewed Henry A. Davidson, M.D., then medical director of Essex County Hospital Center, one of the largest county mental hospitals in the United States (Schwarz 1969, 1971a, 1974a). Dr. Davidson stated that of the more than 30,000 patients admitted to the hospital since the turn of the century, in no case was UFO symptomatology either a major or an accessory factor. In 1974, Davidson's opinion was substantiated by the hospital's clinical director, Theodore A. Anderson, M.D. (Schwarz 1974a); and in 1976 it was corroborated by Felix A. Ucko, M.D., the new medical director of the same institution. Dr. Ucko recalled one patient prior to 1968 who had claimed contact with a UFO and its occupants, but because of his overall florid symptomatology the patient was

diagnosed as having paranoid schizophrenia. It would seem, therefore, that a hospital admission chiefly or secondarily for UFO-related complaints is rare indeed.

My own experience agrees with the foregoing. In my private psychiatric practice I have seen 3923 patients in consultation, and from 1955 to 1976, have spent thousands of hours giving psychotherapy. This impression has also held true for several persons referred to me for study by UFO organizations as well as for the persons who came to me after seeing one or more of my articles on ufology. Only one was suffering from chronic paranoid schizophrenia and had a past history for many psychiatric hospitalizations. It is evident, then, that if persons who see UFOs or claim close experiences with them are psychotic or severely disturbed emotionally, and this is the reason for their experiences, such individuals constitute the exception.

Psychiatric Literature

In 1969, Lynn Catoe (1969) published her splendid annotated bibliography which lists over 1600 items on UFOs. She cited many articles of medical interest by authors of varying backgrounds. She also included works by physicians and researchers in other fields but who had medical degrees: e.g., Finch, Fontes, Geley, Jung, Meerloo, Oberth, Strughold, and Velikovsky. In some of these references, however, the connection with UFOs is indirect, obscure, and speculative. Of the medical entries only Jung and Meerloo were actively practicing psychiatrists. However, Catoe also included the psychoanalyst and parapsychologist Nandor Fodor, and she listed journalist John G. Fuller's Interrupted Journey, the account of Betty and Barney Hill's abduction on board a UFO, as obtained through hypnotherapy by Boston psychiatrist Benjamin Simon.

In addition to those by Bernard E. Finch, for several years Flying Saucer Review has had occasional articles by the Brazilian-based physician Walter Buhler and some articles on the psychiatric aspects of ufology by me. Although many nonmedical skilled investigators have contributed excellent medical and psychiatric material on the UFO problem, these overlapping areas will not be reviewed here. The content of this article will be chiefly confined to methods and procedures used by psychiatrists.

Jung

In his pioneering book Flying Saucers: A Modern Myth of Things Seen in the Sky, Jung (1959) avoided the problematic physical reality of UFOs and confined himself to the psychic aspects, which he related to images in the "collective unconscious." He touched upon some of the paranormal aspects of UFOs and in an epilogue analyzed The Secret of the Saucers, a book by Orpheo M. Angelucci, a reputed contactee.

Meerloo

Like Jung, J. A. M. Meerloo (1967, 1968) also followed the flying saucer syndrome for many years, having become interested when one of his patients told him in convincing detail how he had met the passengers of a UFO. When the patient later attempted suicide at the prompting of a "mysterious menace," Meerloo felt that his objectivity was restored. He also wondered if the psychiatrist who treated a New England couple who claimed they had been aboard a UFO had been caught up in a temporary psychosis with the couple. Meerloo felt the couple's experiences could have been explained by cryptomnesia: i. e., their accounts were unconsciously assimilated from a commentary on television and stored in the memory until later brought out through hypnosis. Meerloo reviewed the role of memory, the psychology of the visual phenomenon, optical illusions as a source of observational error, psychology of errors of perception, including the Isakower phenomenon, physical distortion of images, the personal quest for magic, the paranoia of flying saucers, and the influence of rumor and propaganda.

Walker

The Symposium on Unidentified Flying Objects, before the Committee on Science and Astronautics (U. S. House of Representatives, 90th Congress) includes Walker's (1968) scheme for the applied assessment of the central nervous system integrity and the method for establishing the credibility of eyewitnesses and other observers. His description of the various methods and tests in reference to a hypothetical subject is comprehensive and gives some idea of what can and should be done in many cases--discounting various practical considerations and costs.

Rhine

In the chapter "Psychological Aspects of UFO Reports," included in the final report of the U.S. Air Force sponsored study of unidentified flying objects conducted by the University of Colorado (the so-called Condon Report), Mark W. Rhine (1968) reviewed material already discussed by others and stressed the use of projective psychological tests, such as the Rorschach and the Thematic Apperception Test. He discounted overreliance on the polygraph (lie detector) and the use of hypnosis as methods proving the truth or reality of what happened. He suggested that both those who did and did not sight UFOs be studied.

Grinspoon and Persky

In "Psychiatry and UFO Reports," Grinspoon and Persky (1972) limited themselves to "the consideration of mental processes as they occur in individuals" and avoided other aspects. They reviewed the role of perceptual distortions under varying conditions and how, in response to differing psychological needs, these can be converted to hallucinated images, delusions, etc., and whether some mental conditions, such as ambulatory schizophrenia or a folie à deux psychosis, could be related to unrealistic alleged UFO data. Mention is also made of false UFO reports from psychopathic personalities, and how in some altered states of consciousness hypnagogic and hypnopompic phenomena, déjà vu experiences, hypnotic or trance-like states, and the Isakower phenomena can become involved. In a manner like Jung's interest in discs (the ubiquitous Mandala symbol) and Meerloo's earlier focus on the Isakower phenomena and the evil eye, Grinspoon and Persky devoted attention to the conscious and unconscious symbolism for the breast and the penis and its possible connection to "typical pictures" of UFOs, which were described as "saucer-shaped or cigar-shaped" objects. They wondered whether these repressed, infantile, sexual conflicts were operative in some UFO experiences and also whether they became psychopathological factors in the scientist studying UFO phenomena.

Critique

The aforementioned articles would have been more useful if the described techniques and methods were applied to actual cases rather than hypothetical ones. At the least, UFO

cases should merit the same care that is given to clinical syndromes, seen in practice and reported in professional journals. Also, in view of the persistent element of psi in many UFO reports, one cannot help wondering why this aspect of the problem, with notable exceptions, has been completely omitted from the literature. (Psi is defined here as various psychic phenomena associated with UFO reports, examples of which are alleged telepathy, clairvoyance, precognition, telekinesis, levitation, materialization, dematerialization, teleportation, etc.) It is all too easy to ignore psi and ascribe it to the role of emotional aberration or to "explain it away" as a spurious symptom of psychodynamic conflict displaced to concern over extraterrestrial life, survival after death, etc. As useful, attractive, and imaginative as some of the published psychiatric contributions are, these shortcomings are irredeemable.

When all the various authors' methods of differential diagnosis are exhausted, it would seem that there is still a formidable unexplained UFO residue. Because the data are so strange in many cases, it is not unusual that psychiatrists would question the emotional health, if not professional integrity, of a colleague rather than first checking out the data carefully and then trying to discover what their colleague did say about the case at hand.

Unlike articles appearing in psychiatric journals where anonymity is necessary and taken for granted, studies on renowned UFO witnesses and contactees present technical problems in their presentation. That is, many well-known cases are readily recognizable, and disguise, which would be difficult to effect, would weaken if not destroy a psychiatric study. Furthermore, some contactees (as well as some scientists) do not know anything about the methods and complexities of psychiatry and they insist that names be used. Perhaps this dilemma can best be approached by promoting a greater awareness in the scientific community of these ethical problems so that in-depth, sometimes long-range studies can be reported in a way that protects the anonymity of the contactee and yet gives the psychiatrist the same free hand he has when preparing his reports on more mundane subjects for psychiatric journals. In an analogy to this situation in ufology, there has been an apparent change in official attitudes toward psi in recent years so that it is no longer as difficult as formerly to have articles published in medical journals. In ufology, advances can be retarded if relevant psychiatric data gathers dust while locked in somebody's filing cabinet. It is time for the members of the invisible college to become visible.

Firsthand Psychiatric Studies

In considering UFO and UFO-related phenomena, one is immediately struck with a paradox that although there is no dearth of data almost ready-made for the psychiatrist, there are too few published reports by psychiatrists that are based on firsthand investigations. Aside from some of Wilhelm Reich's controversial researches on orgone energy and UFOs (Schwarz 1973a) Simon's brief mention of his hypnotherapy with the Hills (Simon 1967), and my own studies in medical journals (Schwarz 1968, 1969, 1976a) and Flying Saucer Review, no psychiatrists to my knowledge have published firsthand studies of people who had close UFO experiences or claimed contact with flying saucers, entities, UFO-associated creature cases, etc.

With the exception of psychiatry, most medical specialties evolved historically from the situation in which a person suffering pain--the patient--first turned to a person who was skilled in relieving pain--the physician. However, psychiatry is a physician-created specialty, and the psychiatrist, unlike the internist or surgeon whose services were sought, had to go out and "convince" the would-be patient, who most often was not suffering pain, that he was not well and needed help. Therefore, by his training and practice and historical evolution the psychiatrist is suited for the study of many UFO cases where it is desirable to go out into the field to examine witnesses and contactees, many of whom are convinced of the "reality" of their experience and see little need for psychiatric consultation. The psychiatrist will share their curiosity as to why they were "chosen" and what they might have in common with other persons who had similar UFO encounters. He will wonder about the meaning of their experience and in some cases the interpretation of their alleged UFO-associated message.

THE ROLE OF THE PSYCHIATRIST

A mere listing of some of the major symptoms and sequelae to close UFO sightings and contacts gives ample reasons why physicians in many medical specialties, and particularly psychiatry, might be interested in UFO investigations: alleged fainting, blackouts, time lapses, memory distortions, temporary paralysis, long-lasting muscular weakness, weight loss, burns, transitory hoarseness, alleged healing effects, and the possible causation of malignancy, alleged

blindness, sexual experiences, and symptoms of anxiety increasing to confusion, panic, and fugues and psychosis.

Also, if the psychiatrist has an overlapping interest in psi, he will find UFO cases where there is evidence for alleged poltergeist effects, clairvoyance, telepathy, precognition, telekinesis, levitation, out-of-the-body experiences, teleportation, apports, materialization, and dematerialization. He might also find cases associated with alleged Doppelgänger or "cloning" motifs and "men-in-black" phenomena. *

Therefore the psychiatrist's skills in establishing the credibility of the witness extend to the evaluation and interpretation of various specific symptoms, emotional and possible psychosomatic and paranormal reactions, behavioral and UFO-associated alleged physical effects and their interrelationships.

From his examinations of the UFO witnesses, and also from access to other medical records, the psychiatrist can determine whether the witness has perceptual deficits in seeing and hearing. If these faculties have been impaired or otherwise affected by the alleged UFO experience, the psychiatrist is in a position to appraise the witness' state of consciousness--if, and how, it might have fluctuated. He can determine if the witness had a preexisting impairment of intellect or memory, or if these difficulties followed the encounter. Did the witness have an emotional instability? Confabulation (filling in memory gaps with fabrications)? To what extent might his experiences have been influenced by alcohol, drug use, hallucinogenic agents, or UFO accounts and dramatizations appearing in newspapers, radio, and television? How did the witness react when describing his experience and how did his behavior correlate with reactions to other significant people and events in his life?

*"Men in black" (MIB) is a syndrome described by ufologist John A. Keel in which following a UFO encounter or contact, the witness is visited and frightened by dark-skinned men, dressed in dark clothes, who tell the witness details about the UFO experience which they supposedly had no way of knowing. This situation, which is common to many well-known close sightings and contacts, is as yet unexplained. See Keel, J. A., UFOs: Operation Trojan Horse (New York: Putnam, 1970).

By study of the witness and, when possible, different members of his family, it is often possible to detect such character disturbances as difficulties in truthfulness and honesty. By applying interview techniques useful in psychotherapy the psychiatrist can obtain data which might otherwise have been omitted with "coming-on-strong," leading-question techniques, and which might aid in the interpretation of the alleged experience. The more time he spends with the witness, the more detailed and valid his opinion. The psychiatrist's clinical work with patients, when extrapolated to the study of the witness and in field work studies in a vis-à-vis relationship, can elicit details about possible psychobiological and other odd effects that might have been otherwise glossed over, understated, or exaggerated. The confidentiality of the physician-witness (patient) relationship is conducive to the revelation of data that might otherwise have been missed or considered irrelevant. This holds true for intimate factors pertaining to marriage and sexual behavior. This is also valid for possible psi and MIB aspects. In previous years it seems that many official investigations overlooked these possibly key data and the popular press were the only ones to consider it, whatever its significance.

In some situations where it is neither feasible nor practical for the psychiatrist to see the witness alone, his insights can still be valuable when observing how the witness interacts with other involved people, including other witnesses, friends, and members of his family. In given cases, the modified collaborative research technique (Robinson 1969) might yield evidence similar to the valuable data elicited when applied to the study of some emotional aberrations and psychosomatic diseases. This technique is particularly applicable to instances of suspected hoaxes, fabrication, and lying. Fortunately, in my experience at least, examples of such hoaxes and pranks are rare. However, I recall one, a youthful witness who had alleged photographs of a close sighting. The young man had received notoriety in the press and television but when I studied him years later, he confessed to his hoax after modified collaborative research methods. The therapeutic handling of this event prevented further damage to this troubled person who had inadvertently gotten into hot water when his not-so-innocent prank fell into the hands of the hungry media and eventually turned his notoriety into a near-nightmare.

By listening to the witness and knowing when to be quiet, when and how to ask questions, the psychiatrist can

delve into other personal factors. He would be curious about the chronology of any previous UFO sightings, antecedent illnesses, including possible mental illnesses and hospitalizations, operations, or other events such as deaths, births, anniversaries, divorces, or changes in the witness's behavior, personality, sexual attitudes, and responses to other members of his family. He would be particularly interested in the post-UFO social effects, if any, and how the marriage was influenced. For example, the psychiatrist would be curious about the dynamics of the marital breakup of some well-known UFO contactees (Schwarz 1974c). He would wonder about what neurotic character traits might have developed, or if there was a heightened interest in firearms or violence, or about any occupational changes. Did the witness become accident-prone, or dependent on alcohol or drugs? Did he lose interest and become depressed? Did he become suspicious of previously innocuous events? Had he suddenly developed and excelled in new skills? How were his powers of concentration? How did his children do at home and in school? Did the witness drop out of college or shift to interest in an esoteric philosophy or religion? The psychiatrist is in a position to hear things that are seldom listed in "official" reports that appear impressively prepared--for example, witnesses sometimes will tell him that they have a hunch or a series of dreams that preceded (or followed) the UFO experience.

By seeing, interviewing, audio- and videotaping, and photographing, when appropriate, other members of the family, separately and together, and neighbors, friends and relatives, often in their homes and/or at the supposed site of the UFO experience, the psychiatrist will sometimes learn things that are different from what he might have learned in the less familiar, sometimes austere environment of the hospital or office. There are advantages to seeing the witness in his home interacting with his family, where more can be learned about various cultural, racial, or ethnic factors that could possibly relate to his reaction to his UFO experience. By these data-eliciting techniques the psychiatrist might be more likely to discover possibly related patterns of other UFO sightings from previous years, or kindred Fortean phenomena, going back in his family to previous generations and still progressing. He might wonder how these past events correlate with what the witness reports now and how much of the current report could have been derived from knowledge of the earlier experiences, even if largely subliminally transmitted.

As can be seen, there are many complexities and permutations of human experience that enter into UFO sightings. The data entered on many of the UFO-report forms are of necessity superficial and barely scratch the surface--at least as far as the individuality of the human being is concerned.

Some of these myriad factors might better be explored if the psychiatrist is fortunate enough to have a patient under treatment who had a close UFO experience, or who knew about such an event from a friend or member of the family. Having knowledge of his patient's psychopathology, the psychiatrist is in a position to offer an opinion about the validity and interpretation of his patient's experience. He might be able to determine how much was "reality" as we understand it, what the psychodynamics and psychic dynamics might be, how much "reality" was admixed with possible psi, and what, if any, experiential residue could be attributed to the UFO contact itself. From his meetings with colleagues in other medical specialties, a psychiatrist is in a position to have referred to him "silent contactees, "* and thereby have not only the benefit of his colleague's experience with the patient over an extended period of time but also a story that has not been contaminated by the influence of the media, attendant publicity, and reactions of other people. It might be possible to learn more under such circumstances far removed from the glare of notoriety, the frequent ridicule, or the desire to exploit the experient. Under these more desirable circumstances, the psychiatrist might learn about some of the peculiar possibly psychic and synchronistic** effects. As a matter of fact, he might find himself seemingly involved in these situations. Unless synchronicity is a psychic red herring in the UFO dilemma, it might offer clues to much that happens in these experiences.

*"Silent contactee" is a term coined by John A. Keel to describe a person who has had contact with UFOs or unknown entities and has chosen to remain silent. See Keel, J. A., UFOs: Operation Trojan Horse (New York: Putnam, 1970).

**Synchronicity is a concept that "takes the coincidence of events in space and time as meaning something more than mere chance, namely, a peculiar independence of objective events among themselves, as well as with the subjective [psychic] states of the observer, or observers" (Jung, C. G., Psychology and Religion: West and East [Bollingen series xx], translated by R. F. C. Hull [New York: Pantheon Books, 1958], p592).

Possible Dangers to Witness and Investigator

A word of caution should be said in behalf of the UFO investigator. Those with firsthand experience or who have studied published accounts are aware that many witnesses have had terrifying experiences which, in many cases, have been suppressed, repressed, and repeated. In some instances the witness has had multiple episodes of violence in his past life and has had access to firearms. Although it is unknown about how this might tie in with the reputed UFO experience, or if at all, it should be cautioned that stripping the witness's defenses by ill-considered questions and techniques, or the use of hypnosis or the like unskillfully, could expose the investigator and others to danger. For example, one witness whom I studied and who had received much publicity was suffering from chronic schizophrenia (Schwarz 1971a). It seemed that this witness was not helped by previous interrogations and that such third-degree methods might have contributed to his illness. In another example, a young man (Schwarz 1971c, fn p26) who might have had some kind of an original UFO experience was so harried by zealous investigators and the popular press that he lived in terror, with a rifle by his chair. He sat up at night waiting for the MIBs to come through the doors (or the walls!). In this case the witness, who had had previous psychiatric hospitalization for reasons not connected with UFOs, was not only adversely affected himself, but was a potential menace to members of his family and others. In an unreported case that I investigated, my professional if not athletic skills were employed in warding off an LSD-crazed teenager's butcher-knife attack upon her mother, who was a friend of the contactee. Even so-called experts find it difficult, if not impossible, to make a fair guess about what reaction a person will have under a given stress. Therefore, one can only speculate about the potential dangers to those investigators lacking skills in evaluating the risks of violence (Schwarz 1972b, 1974b).

Whatever the "reality" of the UFO experience, it is real to the witness, who is often frightened and perplexed about what has happened. Where there were alleged telepathic communications or other quasi-psi forms of receiving messages, the witness's ego strength and ability to test reality can be severely compromised. By the psychiatrist's combining the interview and therapeutic techniques with appropriate drugs when necessary, he is in a position to therapeutically intervene in behalf of the witness in his or her time of crisis, and also to utilize the information derived from the person's

encounter for research purposes without harming the patient. The first rule is the ancient medical maxim, "First, do not harm." In all too many cases one gets the impression that some UFO witnesses are damaged by injudicious, untrained queries.

At no time is it ever indicated to make a-priori judgments on the witness's character or to indulge in ill-considered, wild interpretations. It is reprehensible to add to the reputed contactee's or witness's burdens, whatever the meaning of their experiences, by prematurely interpreting possibly iatrogenic factors.

By being patient, understanding, and--when called for --firm, the psychiatrist is in a position to enlist the witness's cooperation. As happens sometimes, the witness, when later (recurrent) UFO and associated phenomena develop, will turn to the psychiatrist for help. Although an explanation of the UFO event might not be forthcoming, there are so many allied aspects to the problem, where common sense and professional knowledge can be of value, that the witness will appreciate this fact and at such times psychiatric intervention might prevent development of an anxiety or paranoid state or other serious emotional or psychosomatic reactions.

It should be stressed that these psychiatric techniques are also applicable to close-encounter UFO cases that happened many years ago. It would be interesting to see how the experients have fared: those who weathered the storms of publicity and those who remained silent. In Canada, John Musgrave (1976) has studied many cases that happened decades before the advent of flying saucer interest in 1947.

It has been speculated that there has been a subtly-managed, governmentally-influenced UFO news blackout because of the possibility that official recognition of UFOs might cause mass panic as well as for military and security reasons. Mass hysteria can be highly contagious and assume epidemic proportions. On the other hand, news management for the "public good" could jeopardize the health of those individuals who have had close UFO sightings and contacts. By the implications of the media that UFO witnesses are crazy, are lying, or are unable to observe correctly, those witnesses, some of whom are already anxiety-ridden by their experiences or for other reasons, can become further split and disturbed. Such inexcusable responses, sometimes emanating from high sources of scientific authority as, for

example, some of the late Dr. Condon's comments as reported in the press, can harn individual witnesses and retard UFO research. Perniciously irresponsible media reporting could precipitate problems for people with impaired reality-testing abilities.

In addition to his professional skills and knowledge of possible patient reactions, the psychiatrist should know something about the subject of ufology--especially, that it is complex--before entering active investigations. He should never be discourteous in his attitudes or flippant with his questions. If the reputed UFO experience seems odd to the witness and takes courage to report, the psychiatrist who is used to dealing with sometimes bizarre material should not bungle the interview by "turning off" the witness and thereby shutting off a supply of possibly valid and critical information. An investigator who is not interested in the human equation part of ufology and who cannot stay awake during the interview would be better advised to stay away from this type of material.

The interviewer should also be aware that by his own attitude and by doctrinal compliance (Ehrenwald 1957) he can communicate various subliminal clues which can influence the witness in various ways. Some of these delicate, half-hidden influences that can affect all of us one way or another, despite claims of being "completely objective," are described by Meerloo (1964).

Physical Examination Findings

In conjunction with history-taking the psychiatrist is in a position to examine the witness physically when appropriate. For example, in some cases it would be helpful to have on-the-spot and medically precise descriptions of an alleged skin burn, ocular damage, or--if it exists--an appraisal of the deep tendon reflexes and sensory changes that might elucidate an alleged beneficial UFO effect on a previously diagnosed low back pain. Many examination procedures are simple and can help to establish if there was a physical change as claimed, and if so to give it a quantitative appraisal and see if the supposed changes correlated with anatomical and physiological patterns, or if they were more in accordance with the witness's conceptualizations and disturbed body image. The psychiatrist can aid in determining if the behavioral effects are caused by physiological-physical changes, or the

reverse. Furthermore, by his knowledge of the significance of these findings, the psychiatrist, in his role as a primary-care physician, can refer the witness to another specialist--for example, an ophthalmologist (Haines 1976), neurologist, dermatologist or radiologist--for additional procedures and laboratory tests.

Several spectacular physician-documented, close-encounter UFO cases demonstrate the value and need for psychiatric scrutiny and cross-fertilization between the medical specialties. The famous AVB (Creighton 1969) case, arising in October 1957, was comprehensively studied and reported by Drs. Buhler and Fontes. This case (which was translated and written by Gordon Creighton) involved a Brazilian farmer who was taken aboard a UFO for the alleged purpose of impregnating a female entity. Another unusual case happened in 1965 when an experienced woodsman, while entering the Florida everglades suffered a serious eye injury from contact with a UFO, which necessitated his hospitalization. He was seen in the hospital by several physicians, including an ophthalmologist (Lore 1969) who prepared a careful report which tended to substantiate the experience and defined the injury.

Another interesting example is the Simons case of 1966 (Schwarz 1968) when a young man, after being in close proximity to a UFO, sustained marked weight loss, weakness, and muscular atrophy. It was possible to obtain a record of his hospitalization, where in addition to all the usual tests, he underwent a study of the cerebrospinal fluid, an electromyogram, and muscle biopsy. Another illustration is provided by the highly publicized Michalak case in Canada in 1967 (Michalak 1967, p40). The witness suffered allegedly UFO-induced chest burns, and possible hematological changes. The initial excellent medical studies were later supported by consultations by a dermatologist, psychiatrist, and a neurologist at the Mayo Clinic. Finally, mention should be made of the enigmatic case of Dr. "X" of France, still under study. Following his UFO contact, Dr. "X" had an extraordinary healing, and later associated physical and paranormal effects involved his infant son and other members of his family, all of whom have been studied by a variety of medical specialists and the eminent ufologist Aimé Michel (1969, 1971).

Hypnotism

From what has been said, it can be seen that hypnosis

(or the adjuvant use of intravenous sodium amytal or sodium pentothal), although an excellent tool in the investigation of contactees (for example, time lapses), is like the surgeon's scalpel, no better than the skills of the one who uses it. Hypnosis, like the polygraph (lie detector) or the psychological stress evaluation (PSE), in the hands of an expert is helpful in obtaining a truthful account of an experience, but it does not guarantee that the truth will be exposed. In my experience UFO contactees, unlike most across-the-board psychiatric patients or so-called healthy people, have been usually easy to hypnotize and almost always go rapidly into deep somnambulistic trances. In some cases, the piercing of their amnesia and recall of their encounters was sufficient to cause enormous psychic turmoil: e.g., screaming, laughing, or repetition of an autonomic upset that might have happened during their sighting. It is advisable, therefore, that reputed contactees should not be hypnotized unless the investigator is aware of the detailed psychopathology and potential risks, has suitable malpractice insurance, and is prepared to administer necessary first aid and follow-up treatment or hospitalization. For example, a middle-aged female contactee, who was hypnotized and regressed to the time of her UFO experience, shrieked in terror as the "pumpkin headed entities" approached her. Although the woman was examined beforehand and was hypnotized in the presence of another woman and some members of her family, when she came out of the trance, she was exhausted and complained of severe headaches which took additional measures to relieve.

Other Methods of Study

Sometimes material obtained from other dissociated states, as, for example, in automatic writing or the ouija board, is available. This information might also offer additional insights into the life of the contactee and his experience. However, unless the investigator is aware of the complexities and potentially disintegrating effects of these methods, he should use them cautiously. In some instances the contactee will have made a drawing, painting, or other artful representation of his experience. Such material is not only valuable as a projection of the witness's experience but also might have some basis in reality. It should be pointed out that the paintings by witnesses, some of whom were artists, that I have studied are quite different from a series of colorful, often highly embellished and disorganized paintings of purported UFOs by psychiatric hospital in-patients shown me

by Mrs. Pamela Vawter, formerly an art therapist at Essex County Hospital Center.

Electroencephalography and Electromyography

Electroencephalography (EEG) might be applicable to some UFO witness cases where there might have been central nervous system effects or headaches, memory lapses, fugues, or other forms of trancelike behavior. The EEG might help to separate the element of a trancelike state of dissociation from some hypothesized unknown effect of the UFO on the brain. The best procedure could be combined with hypnotic activation (Schwarz, Bickford & Rasmussen 1955). Recordings made during sleep, Metrazol activation, stroboscopic stimulation, and--if there was an intercurrent coexistent pathology as, for example, in Aimé Michel's Dr. "X" (Michel 1969, 1971), or the contact happened to a person with severe intractable epilepsy--depth electrography might be indicated for therapeutic purposes. These studies could be skillfully combined with detailed questioning--in and out of a hypnotic trance--of the UFO (witness) patient (Groethuysen et al. 1957). Similarly the electromyogram might be of value in cases of possible UFO-induced tonic immobilization (Schwarz 1971b) or situations where there was muscular atrophy following alleged close UFO contact.

PARAPSYCHIATRIC TECHNIQUES

Psychiatric approaches to the study of psi as it pertains to the UFO contactee have already been mentioned. These methods have been applied to Mrs. Stella Lansing (Grattan-Guinness 1975, 1976; Schwarz 1972a, 1973b, 1975a, 1976a, 1976b), a middle-aged housewife contactee who has taken more than 500 motion-picture reels of alleged UFO-like phenomena over a period of years. Controlled clinical studies, using video tape, motion pictures and audio tapes, suggest that this woman has paragnostic and thoughtographic abilities in addition to whatever supposed UFO effects there might be. Some of Mrs. Lansing's possible paranormal filmic images as, for example, her clock-like pattern of UFO-like objects, have also been obtained by other persons using different motion picture cameras and films at varying times. *

*In addition to a controlled experi- [continued on next page]

Mrs. Lansing, her methods and equipment--as well as other contactees--has also been scrutinized by the renowned telepathist and magician, the late Joseph Dunninger. Many UFO cases might provide suitable data for a documented paragnost's skills, as applied by Professor Tenhaeff (1960, 1962, 1965) to other conditions.

The psychic dynamics of everyday life and of thoughtography have been brilliantly explored by Eisenbud (1967, 1970), and might be profitably adapted to other contactees. In some UFO witness or abduction cases that later had psychiatric and paranormal surveys, the voluminous amount of psi data suggested the rationale for applying these methods to many other well-known cases (Bloecher 1974; Schwarz 1975b, 1977a, 1977b, 1977c). Could spectacular UFO contactees also be gifted paragnosts with the potential for and characteristics of documented powerful physical mediums? The handful of studied cases might hint at this, but they are insufficient for any definitive opinion.

There are other studies on psi which beg for application to ufology. For example, Ehrenwald (1949) has written about ways of testing for psychics (some contactees?), and Ullman and Krippner (1970, p110) have expatiated on how dissociative states (similar to trance-like states of UFO encounters?) might relate to dreaming and psi. Finally, mention should also be made of physician Puharich's report (1974) on his experiences with Uri Geller, who connected his extraordinary claimed telekinetic, teleportation, and psi abilities to UFO contacts (Ebon 1975, Geller 1975). Although Puharich's interpretation of these varied events might be questioned, the facts--if they are all facts and the controversies can never be resolved--demand careful attention, thought, and psychiatric scrutiny.

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ment (Schwarz, Flying Saucer Review, vol. 20, no. 6 [1975], 18-22, where clock-like patterns were obtained by a young boy, four other people have sent me their films with clock-like patterns that were allegedly filmed either when present with Mrs. Lansing, or when alone and under conditions analogous to her successful filming experiences. In contrast to this, I have never filmed clock-like patterns at any time: whether in previous years before knowing Mrs. Lansing, when with Mrs. Lansing when she filmed clock-like patterns, when I was filming with other people, or when by myself.

It is hoped that psychiatrists will become interested in ufology and that by studying the witnesses and the contactees and comparing their data with material obtained by scientists in other disciplines, a better understanding will be gained of this problem, as well as, perhaps, some discoveries of practical value.

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SPECULATIONS ON THE UFO EXPERIENCE

Harold A. Cahn

I think that there is a paranormal element in the UFO experience, or, more importantly, it is fruitful to think that way about it. When I think about it, I almost always ask, can one think about it fruitfully? not, what is the Truth about UFOs? Consistent with this propensity, I have included in these pages musings, with a moderate amount of structure, about thinking about the experience called--UFO.

Bear with me when I say that it may be worse than useless to search for the Truth about anything: but to do what I call thinking fruitfully is not only exciting but it can also be profoundly goal-directed. Toward what goal can we progress if we think fruitfully about UFOs? Stated baldly:

> By thinking fruitfully in relation to a desired accomplishment, one facilitates an interaction between awareness and matter/energy.

What I am saying depends on the very basic assumption that consciousness (equivalent to "awareness") is both primordial and absolutely creative.

Consciousness is not, as most authors assume, a product of mentation. I consider it far more fruitful to assume boldly that it is creator. Anything which consciousness creates I call a model. Among the models consciousness creates is one we call nature; the four-dimensional space-time cone whose limits are determined by c, the velocity of light. Nature "out there" is out there only in the sense that it is a creation of awareness; not that it exists independently of consciousness and is governed by inviolate laws. We see laws of nature as statements we make about regularities in a certain kind of mentation; specifically the kind we use to construct nature. It is not incomprehensible, as Albert Einstein thought, that the universe is comprehensible; rather it is absolutely inevitable! What could we better comprehend than that which we make?

There are events which reveal attempts of awareness to create different models. I refer to extrasensory perception (ESP) and psychokinesis (PK). Such exhibitions, when novel, we call psychic or paranormal. A very useful way to define a paranormal phenomenon is to say that:

> Psychic events reveal the intention of consciousness to create a model whose regularities are not those of the mentations used to manifest nature.

By necessity, paranormal phenomena are contrary to natural laws. Just as the laws of nature reflect the structural characteristics of the mentations through which nature is manifested, so paranormal phenomena reveal structural characteristics of the mentations used in constructing them. This is why they are important to the researcher. By thinking about them this way we learn much about both our creative capacity and how consciousness interacts with matter/energy under the guidance of mentation. Metaphorically, I sum up this unorthodox way of looking at it by saying, "Gods we are with feet of clay."

Because of the unfruitful, but thoroughly ingrained way we have of thinking of nature as existing independently, we invent the notion of a Creator "out there" to express our noesis that we are that creator. It is the very belief in the objectiveness of nature operating under inviolate laws that limits us. Thus the feet of clay. If we can think differently about it, or focus on a different belief mentation, and use what I call "magic mentation" as in contrast to scientific-logical mentation, we can bypass the limitation which prevents creation of a new model whose laws are those of psychic phenomena. I see a belief as both enabling and delimiting; a neurophysiological mechanism for both manifestation and delimitation of the intent of awareness through a process which I call "consciousness-matter/energy interaction." By this phrase I mean an interaction between consciousness and matter/energy. We humans possess the capacity to act as a transducer or transfer mechanism for the two. By virtue of this capability we have a unique advantage over other organisms; this is, that we can review our mentations and therefore change them to facilitate whatever intentions we gods may opt for. Were it not for the manifestation of alternative intentions in psychic events, perhaps we would overlook our capacity and true significance. Now you may understand why I said earlier that to think differently about something can be profoundly goal-directed.

Stop a minute with me in this on-rush of ideas and consider soberly two alternative ways of thinking about consciousness and its models. Is it really more logical, or even empirically demonstrable, to conclude that nature is independent of awareness and consciousness is merely a product of mentation? Honestly, I don't think so. If you think it is, tell me by what experience we can establish the independence of nature. So why not start with what is actually given: awareness itself? What is called experience of nature then becomes inferential, a set of beliefs about experience itself. I think it much more fruitful to think about the relationship between consciousness and nature as one where awareness constructs nature because, in our experience, that is what we actually see. We see it most dramatically in psychic phenomena. In that view, it is no wonder that the scientific explanation, and its ability to predict and control nature, is good so far as it is really applicable. Furthermore it is no wonder that science stumbles and even declares occasional bankruptcy, when it attempts to deal with models created by awareness through different belief mentations. C. E. M. Hansel (1966) in his thorough analysis of the findings of experimental parapsychology, saw clearly that such phenomena were impossible under nature's laws, but, because he couldn't escape the belief limitation in the objectiveness of nature and those laws, he could only conclude that either researchers were totally deluded or engaged in a gigantic consensus hoax.

This is nonsense. Anybody who has investigated the paranormal with any seriousness knows full well that not only do the phenomena exist but they can be induced at will. A recent thought-provoking case of this came to light with the publication of Conjuring up Philip (Owen & Sparrow 1976) which describes a regular potpourri of psychic events (table levitations, rappings, etc.) associated with the decision by a group of non-psychics to produce phenomena in line with a fictitious character they called Philip. We all know about the crop of mini-Gellers which arises every time Uri Geller does a broadcast. Of course many are engaged in wishful thinking in the excitement, and a few are downright fraudulent, but others have been able to repeat their new-found ability under the eyes of scrutinizing and experienced observers.

That's not the worst of it. Let's look further. Phenomena not regarded as psychic at all equally demonstrate that consciousness can interact with matter/energy. The creation of matter itself, nature, the maintenance of nature, and

other models under quite different laws are examples. In this context I find it curious that orthodox science, to account for the measured anomalous effect of observation on physical systems at the subatomic level, had to invent the principle of indeterminacy (Heisenberg) and that in the very teeth of that sacred pillar of the scientific ediface: causality. Along with other writers, I see quantum indeterminacy as reflecting random, in contrast to purposive interaction between consciousness and matter/energy. Here is the process at its physically lowest common denominator. John A. Wheeler (1975), one of the world's great physicists, concluded that the act of observation and participation of us human beings is involved in the creation of the universe itself.

Turn now to more mundane (only because closer to ordinary experience, but still truly anomalous) events, which are far more amenable to explanation under the assumption of the primordiality of consciousness than they are within the consensus scientific model. Any astrophysicist will tell you that if nature is all there is, the laws of thermodynamics forbid its creation. The same is true for those biologists who have looked hard for the origin of life.

Here is the rub. Any evolutionary theory, be it of life or of the universe itself, as an explanation of how systems tend toward greater organization, is disallowed under the most basic laws of nature, namely thermodynamics. Yes, I know that open systems can be driven thermodynamically uphill by an energy source external to itself, but in itself this does not result in organization increase. Heating frozen water results in a decrease in organization, not increase. Organization is always the consequent of intention, never of mechanical causal processes.

How about the willing of muscular action, or awareness of mentation itself? We can't get any closer to our personal experience than that. Wilder Penfield, in his book The Mystery of the Mind (1975), observes that electrical stimulation of those temporal-cortical areas which are relay stations to the primary sensorimotor areas, or of the interpretive cortex, or even of the primary cortices themselves, results in dictated behavior, as experienced by the subject, and not behavior initiated by the subject. "You did it, Doc," says the patient when asked what made him revive a childhood experience of forty years ago. We all know full well experientially what "will" is in spite of the attempts of behavioristic psychologists to delete the word from our vocabulary. After

careful sifting of the evidence, much of which he garnered himself, Penfield concludes that if one can't explain the mind (= consciousness) by the brain, perhaps one can explain the brain by the mind. He becomes a mind-body dualist. That is one giant step toward what I am proposing.

I call all events which reflect the intentional interaction of consciousness with matter/energy winding. Unwinding, in contrast, is the term proposed for a process without such intervention. However, there are neither purely winding nor exclusively unwinding events. To the extent that winding predominates, the event is regarded as anomalous and is not fully explainable by the model that today's science provides. The mode of connectivity in the awareness matter/energy interaction event is acausal and synchronistic [see footnote, page 122], while in unwinding it is purely causal. I'm sure Carl Jung recognized this when he coined the term but he wasn't thinking about it in the same framework I am. The energy utilized to bring about the physically anomalous result of the interaction, be it willing a muscular action, a psychic healing, or a materialization by a physical medium such as Richard Ireland, is the energy which connects cause to effect in any unwinding process. This causality-related energy is what Nikolai Kozyrev (1965), a Soviet astrophysicist, calls time. Time here is not to be confused with that which is symbolized by the clock. That time, called by physicists "interval," or "duration," was shown by Immanuel Kant to be only a category of understanding. I would say that it is a way--ingrained by conditioning, and especially by scientific training--to construct a conceptual model of nature. Consciousness is beyond (in Bob Toben's sense presented in Space-Time and Beyond [1975]) nature, outside of clock time and space. There is nothing contradictory in saying that human consciousness created nature even if, in the evolutionary conceptual model, man evolved long after the origin of the universe. That's another difficulty in all evolutionary models; they require us to view all events as taking place in time. In so doing they prevent us from thinking more fruitfully that clock time is just a convenient way to order some experience; one that can blithely be abandoned when trying to explain an anomaly. Psychics are aware of this. That is why they often say that in the trance state, or in the realm of spirits, time does not exist. They are reporting on that magic mentation by which they produce paranormal phenomena.

The time I am talking about, real natural time, is actually energy. To say A causes B is to say that A and B

are energetically coupled. Time energy can be detected and made to do work. Kozyrev (1965) and an American engineer, Bruce De Palma (1977) have repeatedly experimentally demonstrated and manipulated time energy. By the way, what Harold Blum (1962) and other authors call thermodynamic time, or what Lecomte du Noüy (1937) called biological time, is Kozyrev's time. In my model I look for a mechanism by which the causality-related energy can be diverted by the intention of consciousness, as modified by mentation, to effect anomalous change in nature. We are aware of the flow of unwinding cause-effect relationships and its intentional interruption in what we call the sense of varying time flow. When we experience time speeding up (in fever) or slowing down (in trance states when brain wave frequencies are lowered), what we are reporting on is awareness of the extent to which consciousness interacts with causal processes. No wonder the psychic in a deep trance experiences what is nearly a time stoppage, for in this situation virtually all the time energy is diverted from causal effect to anomalous manifestation. This might be a psychic materialization by the same basic process through which living organisms are organized from biological materials: proteins and nucleic acids. An ectoplasmic wraith* is a belief-delimited manifestation which is more efficiently realized through biological reproduction.

If one boldly assumes the primordiality and absolute creativity of consciousness, it is possible to construct an otherwise scientifically respectable model to account for winding. It is our aim to apply the model to the anomalous UFO experience, as J. Allen Hynek so properly called it.

Focus now on the role of belief and its modification in winding. To do this attend closely to the following attempt to modify your thinking.

Can any belief, any mentation whatever, affect behavior, what you actually do, if, at the very moment of deciding behavior, you are not aware of it? I don't think so because the critical ingredient in any act of intention, any winding event whatever, is the interaction of consciousness with the mentation. To think at all is to be aware of the requisite mentation. That is why I insist that one can produce or change any manifestation whatever by changing how

*An apparition of a living person supposed to portend that person's death--editor's note.

one thinks about it. When you are dreaming you are not aware, ordinarily, that what you are experiencing is "merely" a dream. Only in the waking state does consciousness focus on memory of the dream and then you say that the magic you performed, going from here to there instantaneously, materializing attractive women (or men), or making things disappear, is just fantasy. Your consciousness-focusing is on the delimiting belief which makes you conclude that one can't do such things. Your dream experience tells you otherwise. Now hear me well: by what criterion can you actually distinguish between the reality of dream experience and that called waking? In a dream what would you have to say about waking experience? I have deliberately asked that question while dreaming and what I say, then, is that waking experience limits my capability to do something. What dream experience would then tell you that it isn't really like that, that there is a nature under inexorable laws which limits one from doing something? You say, I can almost hear you, that we are lucky, or we are too highly evolved, to be confined to dreams. We are emancipated from fantasy and therefore free to intelligently survive in a really hostile environment. We survive in dreams too. What I am saying is that all we have is mentations and consciousness can focus on them selectively. Alternatively, awareness constructs the brain as a transducer to realize its intention through a host of mechanisms to be utilized selectively. What we do is make conceptual models of what we attend to in consciousness, what we call experience, under a variety of mentation modes, dreaming or waking, magical or scientific-logical, but we never ever know and can never find out which mode is really true. Although I'm sure you don't think I just did a deliberate programming exercise to modify your thinking, I am confident that you more readily agree now that awareness is pivotal. That is precisely what my comments were designed to get you to think.

My exercise is over. Let's pick up the pieces and see how all this relates to belief. As I said earlier, beliefs are cognitions of mechanisms involved in consciousness-matter/energy interactions. To illustrate this point consider a belief in the scientific-logical mode. Take the one upon which we almost universally agree: man cannot actually change the nature of reality. This cognition can be traced back through verbal and even preverbal levels of our feelings. This process determines, in part, the consequences of an acausal and synchronistic interaction between consciousness and matter/energy. This particular belief limits the winding

event to one of nature maintenance. No such limitation to our ability to do something exists in a dream, or in the production of a psychic phenomenon, nor to a way of thinking which permits UFOnauts to appear here on earth.

Now you can see my strategy in this essay. I want to suggest, as a way of thinking about it, that UFOnauts can get from there, meaning a distant planet to here, meaning to our awareness, simply by thinking about it differently than we ordinarily do. Let's start by considering that a UFO is a craft, a physical machine, piloted by beings from some distant planet not in our solar system. Given this starting point, and carefully remembering that all we can actually discuss is experience itself, it is indeed fruitful to think that:

> The UFO experience is a composite function of how we and the UFOnauts think.

It is not necessary, note carefully, to assume that there is a they to talk about. For, like Gertrude Stein's rose, consciousness is consciousness is consciousness. Its models may be viewed as separate and individualized or not so. Like me, a UFOnaut is just a manifestation of one and the same awareness. I tend to view my experience as individual, privately mine, because in waking scientific-logical mentation I have a belief that I am separate. Perhaps this was engendered by my experience of being rudely separated from my mother at birth. By attending to this belief I see the possibility of thinking otherwise. Here I exercise that function I called the ability to review and modify mentations. Therefore I can think, and sometimes I do, that the UFO experience is just a belief-conditioned way to participate in absolute experience. In order to discuss this topic I use consensus thinking as much as possible so as not to antagonize a reader to whom this way of thinking is still quite new.

You should see that, for me, to make a decision that I believe in UFOs, that they are real, is unnecessary. People have UFO experiences as they have many types of experience and all I am talking about is experience.

We visualize beings from another place who, for reasons I don't care to speculate about, want to come to earth. If, instead of being conditioned to the belief in the independence of nature from awareness, they see nature simply as a model created by consciousness, their problem in getting from there to here is different from ours in getting from here

to there. They ask, what conceptual model shall we use to account for manifestation of ourselves to beings who see space and time as barriers to that manifestation? If I were thinking that way, and obviously I am or I couldn't write these sentences, I would say let's manifest as a craft containing UFOnauts arriving on earth. If a psychic can produce material beings by materialization, or a man and woman can similarly create another human being by conception, why can't beings without contradictory belief limitations manifest idiosyncratically as UFOnauts? The lesson we all need to learn from observing winding manifestations, psychic or otherwise, is that the creative interaction between matter and energy encompasses all that is thinkable. I express this idea in a motto which says:

All thinkable relationships exist.

Surely you can see why I say this. To say that one can think a relationship, no matter how esoteric, is to say that the machinery for manifestation of that intent of consciousness exists. By using it the UFOnauts solve their problem. Have we solved ours?

Let's attempt one final restatement of the issue from a slightly different perspective. If we accept the idea that both space and interval time are but categories of understanding, ways to order experience, then there is no absolute way to insist that there (the place of origin of UFOnauts) and here (where we reside), are separated by a given distance or even separated at all. It was Bob Toben (1975) who said that the beyond is within us. Thus an intentional physical manifestation can be anywhere anytime, or nowhere, here or there, with no distinction whatever between the choices. Einstein partially recognized this idea when he pointed out that from any particular point in the universe the edge of the universe is neither further nor closer to this point than it is to us on earth. As an alternative to the nit-picking kind of thinking of those who search in vain for ways by which material UFOs might travel over distances of 10 to 20 light years--referring to Betty Hill's star map and also the work of Marjorie Fish (Dickinson 1974)--with an absolute upper velocity of 3×10^8 m/sec, we complacently say that there is nothing absolute about either the distance or the velocity of transport. Why, then, inquire in this unfruitful way? I don't want to denigrate those who do investigate the UFO experience this way because, after all, I could be wrong (not just unfruitful) in my approach. I proffer my approach as a Socratic gadfly,

and that with the wry humor which comes to those who know that whatever they suggest will be culled unmercifully by history. To write with my kind of abandon is the privilege of late middle-aged thinkers who have little to lose.

Let me, before summarizing my thinking about the UFO experience, indulge in a bit of magic thinking. Why, I wonder, haven't I ever had even a borderline type UFO experience? I suspect it is because of my excessive compulsion to use the scientific-logical type of mentation, with its inhibiting beliefs. Perhaps UFOnauts don't want to contact people like me; relatively few scientists have had a fullblown UFO experience or participated in a real psychic event. By virtue of efforts by Howard Tooke, one of the therapists at the Potential Research Foundation, I have recently learned to produce some minor psychic experiences. He was able to get me to abandon, very temporarily, my habitual mode of thinking. One might say that for ten seconds' worth of magic mentation I have manifested a few paltry psychic effects, completed a book, written this paper, and vastly improved my musical performance. On the strength of that, I offer a magical plan.

> I invite any UFOnaut who is searching for a sympathetically thinking human being to visit me.

I am too old to be more than temporarily scared if my invitation is accepted but, if my thinking is even halfway fruitful, my invitation will get to the right ears. Enough said. Look for me a few years down the road, not too many years, and see if my "standoff" plan has actually yielded anything.

In summary I suggest that we regard the UFO experience, our own or of others, as just that: experiences. Then we can zero in on the determinants and/or parameters--physical, neurophysiological, and behavioral--of the experience. It isn't bad science to approach it this way no matter how crazy the hypothesis used to explain the "data." Who was the great physicist who said that the trouble with most unorthodox physical theories is that they aren't crazy enough? Far and away the most important consideration is:

> In the name of a UFO experience, what the participant reports is how his belief system deals with his mentation in the experience.

If, from the report, one wants to make inferences about the

independent nature of the stimulus for the experience, it is all right so long as the investigator clearly knows that this is what he is doing. When most investigators ask for objective reports, what they seek is a report screened through the scientific-logical belief system. If they seek that, for the most part that is what they will get. When C. G. Jung (1959) describes a UFO as a "technological angel," he is telling us that Homo religiosus (Eliade's term) thinks this way about certain mentations. I suppose the most objective possible report would be simply to state verbatim the thoughts and feelings one experienced during the episode. Another important consideration not to be forgotten by the investigator is:

> The composite that is the UFO experience is a product of both UFOnaut and participant beliefs.

I said this already but I want to reemphasize that an experience is a focusing on a mentation. In itself it is an interaction between consciousness and matter/energy. Since between the mentation of each participant is common consciousness, necessarily there is connectivity. This should not be overlooked but, of course, it usually is. Once we really understand this, and all it implies, perhaps we can make a return visit to our extraterrestrial guests.

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Chapter 8

UFO REPORTING DYNAMICS

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When a scientist, a policy maker, or an ordinary citizen makes a decision about the reality of an anomaly like UFOs, two sources of information enter into consideration: a priori knowledge, doctrine, common sense; and concrete reports of actual experiences. The first set of sources is of obvious importance, especially where UFOs are concerned. But reports of actual experiences also weigh heavily in the balance according to their frequency, their content, and the persons who make them. It is the intent of this chapter to examine the processes by which reports of UFO experiences become public and thus come to the attention of persons who must make decisions based on them, whether these persons be scientists, government policy makers, or members of the general public.

There are two major events in these processes, which I will term "reporting" and "publication," respectively. The first concerns the different ways in which a person who has had a UFO experience, or fraudulently or otherwise alleges to have had one, comes to make a report of this experience to a public agency, the press, to scientists, or to amateur UFO researchers. The second concerns the dissemination of the report to a greater or lesser public. "Publication" does not only involve the printing of the report, but may also mean its dissemination by radio and television. It is important to distinguish reporting and publication, since the two are often confused. Even worse, it is sometimes assumed both are automatic: that all or most UFO experiences are reported, and that if they are reported, they are necessarily published. We will see that both events, far from being automatic, are in reality not only complex but highly variable as well.

It is also vital to make this distinction to stress the role of intermediaries between reporting and publication: the press, scientists, government agencies, private UFO researchers. These persons and agencies act as gatekeepers for the

transmission of UFO experiences. They do not determine which UFO experiences get reported but they do determine which reports become public. Furthermore, considered as the elements of an immense system of "social intelligence" (Westrum 1977), their behavior is strongly interdependent. What is printed in the press often influences private UFO researchers, what scientists believe about UFOs influences what the press writes about them, and government agencies in turn have a strong influence on the nature of the cases which come to the attention of scientists. In fact, we might well argue that there are many more than two events within the process of making public a purported UFO experience; the utility of the two-part division will, however, become evident as we proceed.

Motives for Reporting

Why does someone report his UFO experience? It should be clear that we might look at this either from an individual or a societal perspective. We could see the individual acting from essentially individual motives, which might strongly involve personality. On the other hand, we might see reporting as an aspect of the individual's relations with society as a whole. Let us consider the matter first from the individual's point of view.

An individual who has had an anomalous experience is almost necessarily placed in a difficult position. By the very fact of the anomaly, the individual has experienced something he is not supposed to experience. There may be the sort of conflict between his belief and his experience which has been characterized as "cognitive dissonance" by psychologists (Festinger 1957) or it may simply be that while the individual does not doubt his experience, he feels that the rest of society will not accept it. In either case, the individual is likely to feel uncomfortable about the anomalous nature of the experience. How can this discomfort be relieved?

This is the crux of the problem of reporting. To relieve the tension caused by an anomalous experience, the experience must be "squared" with society in some way. This resolution can take a number of forms. For instance, the experience can be explained away or rationalized. Or the individual may succeed in convincing at least his primary group that the experience was authentic. What if, however, the individual reports the experience and neither he nor society suc-

ceeds in convincing the other about the nature of the experience? While rational people can agree to disagree, one usually finds that disagreements between an individual and a society about what is real have unpleasant consequences for the individual. The risk of these unpleasant consequences, whose forms we will examine below, is often sufficient to keep individuals from making a report of their UFO experiences.

A survey on opinions about and experiences with UFOs was conducted as part of the University of Colorado (1968) study. One of the questions asked of persons who said they had seen a UFO was whether they had reported the experience or not. Now it is important to note that the question asked whether a report had been made to anyone "other than family or friends" (University of Colorado 1968, p226). This, of course, ignores those persons who had previously told no one at all. In any case, it is interesting to note that 87 per cent of those who said they had had an experience did not report their sighting to anyone other than family or friends.

Let us examine, for a moment, this phenomenon of non-reporting. It is not surprising that most persons will not go beyond their primary group with a UFO experience, for two reasons. First, the primary group may be quite sufficient as a forum in which to air the experience, and the feedback provided by the primary group may allow the witnesses to explain or categorize the experience to their own satisfaction. Second, the primary group may discourage them from making a report, either because the group does not believe the account of the experience or because it does not feel that others would believe it even though the group does. Thus in many cases the experience would go no further than the person's primary group.

There is also the problem of discrimination. How can the person who has had a UFO experience be sure that what he saw was not "something normal that just looked funny for one reason or another"? In the University of Colorado survey (1968, p228), the main reason sighters gave for not reporting was precisely this: they couldn't be sure that what they saw was really something anomalous. The next most important reason was the fear of ridicule, a very real possibility for those who report UFOs. (Ridicule is a serious problem where UFO sightings are concerned. Strentz [1970, pp120-121] gives several examples. Marital problems and loss of job have followed in several prominent cases. In

at least one case I know of, a witness felt he had to leave town following national coverage of his sighting.)

From the individual's point of view then, reporting may not be necessary, and may involve significant personal costs. On the other hand, reporting may allow one to resolve more effectively the question of what was seen than discussing it with just the primary group would be able to do.

Now let us consider the problem from the societal point of view. The individual is a member of society, and society, at least potentially, has an interest in knowing about strange events. The most common reason mentioned by those who did report sightings to the Colorado project (not to be confused with those questioned in the Colorado survey) was a sense of civic duty: "strange objects should be reported" (University of Colorado 1968, p227). Of course this most respectable reason for making a report may mask more individual motives (such as simply finding out what the object was) yet it bears consideration. We are trained to believe that scientists will be interested in observations of strange events, or that the military will be interested to know of strange objects maneuvering in the sky. Hence in making a report about a UFO experience, the person may well feel that he is only doing his duty.

What happens to the individual who makes a report, however, is seldom pleasant, unless the report is made to a private UFO researcher. The military authorities tend to be condescending toward reporters of UFO experiences, as do scientists. The attitude of the press is usually neutral at best, and often quite negative. Sighters are not infrequently dismissed as mentally ill persons, alcoholics, liars, or fools. Only private UFO researchers appear to feel that they have a vested interest in being grateful or even sympathetic to the person who makes a report. In many respects, the typical reaction of society nowadays is reflected in the following remarks of a savant of the 18th century on a meteorite fall witnessed by some 300 persons and affirmed in a legal affidavit:

> If the readers have already had occasion to deplore the error of some individuals, how much more will they be appalled today seeing a whole municipality attest to, consecrate, by a legal protocol in good form, these same popular sensations, which can only excite the pity, not only of physi-

> cists, but of all reasonable people.... What can we add here to such an affidavit? All the reflections which it suggests will present themselves to the philosophical reader in reading this authentic attestation of an obviously wrong fact, of a phenomenon physically impossible [emphasis in original: Bertholon 1791, p226].

Thus society, far from welcoming UFO reports, tends to punish those who make them. The reasons are not difficult to understand. Science, for instance, is a very conservative activity in the short run. While scientists are often presented as displaying intense curiosity about nature, in practice this curiosity tends to be directed toward a very limited range of targets (Kuhn 1970). What falls outside of this range is often summarily discarded (Polanyi 1967). Similarly, while the press may use UFO reports to sell newspapers, it often questions the veracity and sanity of those who make the reports. After a certain period of time an atmosphere of doubt comes to surround persons who make these reports; by the very making of a report, their character begins to appear questionable, their motives suspicious. This skepticism about those who make reports is a very efficient sanction, and those who are not deterred by it can be subjected to ridicule. Even in cases where the witness is relatively sure of what he saw, these reputational sanctions are usually effective in keeping the sighter quiet.

Other factors may be important as well. The nature of the UFO sighting undoubtedly affects how likely it is to be reported. Vallee (1975, p112) suggests that sightings of medium strangeness are most likely to be reported, since those of low strangeness are too trivial, and those of high strangeness are too incredible to be reported. Unfortunately, although he presents this idea in the form of a curve, the points on the curve do not seem to be based on quantitative data, and the finding is a purely impressionistic one.

I suspect that the number of witnesses in the sighting group is also a major factor, since single-witness reports are felt to be less credible not only by the general public but also by researchers like Hynek (1972, p26); persons are less likely to make a report when there is no one else to corroborate their testimony. In Strentz's study of press coverage of UFOs, he found that single-witness cases were much more frequent in Air Force files than in news reports (Strentz 1970, p105). This difference probably reflects the

fact that Air Force files record all cases reported to the Air Force, while the newspapers are less likely to print single-witness cases, since they appear less credible. It is also possible that individuals may be more willing to report a single-witness sighting on a confidential basis (i.e. to the Air Force) than to a more public agency like the press. There is considerable anecdotal evidence in the UFO literature that single-person sightings are considered less credible. (One example: "And I'll tell you this much--if I had seen this thing, the way that they describe it, and I was alone--nobody else would've ever heard about it"--statement by a police supervisor [Fuller 1966, p20].)

Another feature of the social context that affects reporting needs to be mentioned. The willingness of a witness to make a report may be strongly affected by the number of other reports which have recently been published. For this reason one often sees a sudden spate of older reports (as well as some new ones) released after the publication of a prominent sighting. Elsewhere, I have referred to this as the "report release effect" (Westrum 1979). Evidently the cognitive support provided by the experiences of others enhances an individual's likelihood of making a report. The presence of other "cognitive deviants" may be important in sustaining one's own deviance (see Asch 1951). Other reported or published experiences not only provide cognitive support for the witness, but are also likely to enhance his credibility with his primary group and with agencies to which a report is likely to be made.

These considerations and many others affect willingness to report a UFO experience and strongly suggest that those events that get reported, and the persons who report them, are not likely to represent a random sample of experiences. For instance, a number of factors such as ability to discriminate anomalous events, reputational credibility, and a sense of civic duty, are positively associated with social status. Similarly, differences in the reporting context over time (such as the number of reports which have recently been published) will emphasize the types of events occurring during a "flap," which may not be the same as those occurring at other times. The reporting process, then, does not necessarily produce a representative sample of events.

Fraudulent Reports

In the chapter on the anomaly witness, we explored the problem of error in the perception of anomalous events. We must also consider the problem of fraud. In UFO sightings, fraud takes three different forms: the bearing of false witness in regard to personal experience, the production of faked artifacts, photographs, or "physical traces," and the construction of stimuli which will make others believe they are witnessing an anomalous event. The first two categories are self-explanatory; an example of the third would be the launching of luminous hot-air balloons made from plastic laundry bags with candles mounted in them. Although this third type contributes to the problem of error, it will not be considered further here, though we might note in passing that some of the same motives behind the other two types of fraud activate it as well.

It is difficult to estimate what per cent of published reports are the result of fraud. My guess would be about 5 to 10 per cent for reports in general. In itself this is not a large proportion, but it has serious effects, since bogus reports taint all reports with suspicion of fraud. Frauds are, furthermore, much more likely in cases involving physical traces and photographs than in those where only testimony unsupported by other "proofs" is concerned. These cases tend to receive more prominence, more publicity, and more investigative attention. Accordingly, their exposure as frauds is all the more damaging to the credibility of UFO cases in general.

The UFO critics, among them Donald Menzel (1953; Menzel & Boyd 1963; Menzel & Taves 1977) and Philip J. Klass (1968, 1974), have persistently called attention to the role of hoaxing in UFOlogy. It has not been difficult to demonstrate that a large number of cases, particularly photographic, involve frauds of one kind or another. Certainly the great majority of photographs of "UFOs" which appear in newspapers and magazines are fakes. Furthermore, many "historical" UFO cases have turned out to be fraudulent (University of Colorado 1968, pp481-502), a very serious problem in view of the propensity of UFO authors to print these cases without a personal investigation; the cases are often simply printed verbatim from the original sources or, even worse, from other UFO books.

Hoaxes have even further deleterious effects. They

may enter as "data" into considerations of the nature of the UFO phenomenon. For instance, the 1897 LeRoy, Kansas, "calf napping" case has been influential in shaping attitudes toward the "airship" flap of 1896-1897 in the United States (see Vallee 1965, pp16-17). Yet this case has now been shown to be the production of a local Liar's Club (Clark 1976). Hoaxes also tend to shape the attitudes of newspaper reporters and editors in approaching UFO witnesses in general.

The motives for fraud are various. Monetary gain plays a surprisingly minor role. A desire to discredit UFO reports in general and to demonstrate the gullibility of the public is much more important. Often, one suspects, the hoaxer can thereby achieve a sense of personal superiority to those foolish enough to believe in the account or the fabricated evidence. The desire for attention and notoriety is often a factor in the bogus reports of teenagers, who are responsible for probably the majority of frauds in the UFO area. Finally, some frauds become public through a kind of "escalation of audiences." Someone perpetrates a hoax on friends or relatives, which is so successful that the hoaxer is ashamed to reveal its true nature. The account or the photograph is then passed on by its author or original victims to the press, the Air Force, and so on. Eventually the nature of the story may emerge, but meanwhile considerable harm may have been done (see Klass 1974, p140, for a similar scenario).

The role of hoaxes in determining scientific and public opinion about anomalies is not a small one. Samuel Mitchill, one of the founding fathers of American science, suggested that research on the sea serpent was hardly worthwhile in view of the large number of hoaxes which had been perpetrated on the subject (Mitchill 1829). In shaping opinion about UFOs hoaxes have had a strong influence.

The Publication of UFO Reports

For most persons who are not UFO researchers, the volume and nature of UFO reports that appear in the press is used as the major index of UFO activity: if there are many UFO reports in the press, we feel that many experiences are occurring; when the number of reports in the press is slight, we tend to believe that relatively little is happening. Since the publication of reports in the press is used an an indicator in this way, it behooves us to take a close

look at the behavior of the press in regard to the UFO reports it gets. (Nowhere has this been more ably done than in the doctoral thesis of Herbert Strentz [1970], whose riches we can only begin to indicate here.) Again, as in the case of UFO reporting, we will see that publication is a very uncertain indicator.

To begin with, we might consider the volume of UFO reports received by daily newspapers. (Omitted from consideration here are such large national weeklies as the National Enquirer and Midnight; they are oriented to sensational stories like UFOs, and probably receive a large volume of reports, but are not taken as seriously as daily newspapers by the educated public.) Strentz found that the average daily in his sample received about one local UFO report a month, and that the larger the paper, the more reports it received (Strentz 1970, p57). The percentage of received reports that were printed was also dependent on size: for dailies with a 20,000 or smaller circulation, 56 per cent of the received reports were printed; for dailies with circulations of more than 80,000, only 20 per cent of the received reports were printed. However, it seems from Strentz's figures that a daily with circulation over 80,000 is nearly twice as likely (1.6 to .84) to print an average of at least one UFO report a month (Strentz 1970, p57). What are the implications of these figures?

One implication is that only a fraction of the cases reported to a newspaper, ranging from one-half to one-fifth, will get published in it. Furthermore, this fraction will be smaller the larger the paper is. This implies that some kind of selection of cases will take place, which will be more pronounced for the larger dailies. What are the grounds for such selection? From the results of a questionnaire which Strentz sent to his sample of 92 dailies, it would seem that the major factor revolves around the credibility of the report: the number of witnesses, their character, and the occurrence of other local and wire-service reports (Strentz 1970, pp58-61). The most frequently mentioned reason (53 per cent) for printing a sighting was that there was multiple witnesses to the event. This accords with Strentz's finding that only 20 per cent of newspaper reports were single-witness (p105), which is considerably lower than the percentages for other collections of sightings. The most striking feature of the filtering process overall, however, is the emphasis on corroboration: if other witnesses to the sighting exist, if other local sightings exist, or if sightings are taking place

elsewhere, this seems to imply that the report is more credible than it otherwise would be.

Another interesting feature is the relative lack of emphasis on the use of UFO reports as "filler." The questionnaire category, "There is a need for a 'bright' or 'freak' short news item," was mentioned by only seven of the 92 dailies, and more often by dailies with circulations less than 20,000 (p59). This is most interesting in view of the feeling of some people that the main reason UFO reports are printed by newspapers is to provide "filler" when news is slack. Of course, we must recognize the limitations of a questionnaire in assessing motives. Even so, it would seem that it is the quality of the report itself, rather than the needs of the newspaper, which are responsible for the appearance of the report in print.

We might also notice that the occurrence of reports elsewhere is a major condition, mentioned by 23 of the 92 dailies as a reason for printing UFO reports (p59). This builds a strong imitative factor into press behavior toward UFOs, and helps explain why there are sudden massive appearances of UFOs in the press after long periods with little mention of them.

To give some idea of national wire service coverage of UFOs, Strentz produces Associated Press data for 1947 through 1966 (1970, p20). During this time there was a total 374 Associated Press stories, or an average of about 19 a year. Since AP is not the only wire service, the actual total of wire service stories is probably some small multiple of this total. Strentz suggests that wire service attention to UFOs is much less regular than that given by the local press (p22). From this point of view, it is interesting to compare the number of reports received by the U.S. Air Force Project Bluebook with those reported through the Associated Press. Using figures supplied by Strentz* (1970, pp14, 20), we find that the ratio of AP stories to Bluebook reports averages .06 for 1947-1966, or about one AP story for every 20 Bluebook reports. However, the ratio varies con-

*These figures are not entirely consistent with the figures in the University of Colorado study (1968, p514). Nor are the Colorado data even internally consistent, showing several (although few serious) instances where the monthly totals sum to a different figure than the annual total.

siderably: for 1950 it is .22 and for 1962 it is .004. The number of AP stories is thus not a dependable indicator of the number of reports received by the Air Force. Many other variable aspects of press coverage of UFOs are detailed in the course of Strentz's study.

The overall result of these findings is that national press coverage of UFOs cannot be used as an index of UFO sightings. It does seem likely that local press coverage would be a much more reliable indicator, but unfortunately there is really no way to determine this. The most that can be said is that national coverage reflects local publication only in a very irregular way and that national coverage is not correlated with the number of reports received by the Air Force. (Since Project Bluebook no longer exists, there is at present no way to ascertain the number of UFO reports currently received by the Air Force.) Thus the publication of UFO reports in the press may give only a fragmentary picture of the number of experiences occurring at any given time.

Expert Opinion: Scientists and the Military

One set of forces that has influenced the behavior of the press can be referred to collectively as "expert opinion." From the point of view of both the public and the press, scientists and the military seem the logical "experts" to consult about UFOs. The consequences of this consultation have generally been negative for press treatment of the subject. Both the scientific community (particularly astronomers) and the Air Force have tended to dismiss UFOs. On the part of astronomers, the rationale has been that on the one hand the evidence for UFOs is insubstantial and on the other hand there are important theoretical considerations against their existence (Westrum 1977). The motives on the part of the military have been more complex. From the useful account of the UFO controversy by Jacobs (1976), the reminiscences of Ruppelt (1956), documents in the "Condon Report" (University of Colorado 1968), and other sources, it would seem that fear of public reaction, lack of apparent danger, and desire to avoid responsibility for an apparent insoluable problem have all played a part. The lack of acceptance by scientists has also had an impact on military opinions.

These opinions from apparently authoritative sources have been influential not only on the press, but also in shap-

ing patterns of reporting of UFO events in the military and the scientific community. It is almost a truism of organizational intelligence that the lower echelons tend to transmit what they think the higher echelons want to hear (Wilensky 1967). It equally appears that scientists are very reluctant to "go public" about their own UFO experiences (Steiger 1976, pp268-285; Hynek 1977, pp23-24) for analogous reasons. As long as the dominant opinion in the scientific and military communities has been anti-UFO, reporting of UFO experiences by persons in these communities has been discouraged. The report is most unlikely to be made in the first place; but even if it is, it is unlikely to be transmitted or published. This resistance is all the more serious in that military and scientific reports are likely to be of higher quality, either because of the witnesses' qualifications or the superior instrumentation at their disposal.

The opinions of scientists and the military are transmitted by the press to the general public. They then help form the context in which a witness's primary group will respond to his professed experience. This response in turn affects witnesses' willingness to report events to the press and the authorities. Hence the system may constitute a kind of vicious circle: the scarcity of reports is held to prove the lack of reality of the phenomenon, which opinion is responsible for a continuing scarcity of reports. Society is unlikely to hear about what it does not wish to hear about.

Private UFO Investigation

The most significant portion of our knowledge of UFOs is the result of the researches of private UFO organizations. Without the efforts of such organizations as the Aerial Phenomena Research Organization (APRO), the National Investigations Committee on Aerial Phenomena (NICAP), the Mutual UFO Network (MUFON), the Center for UFO Studies (CUFOS) and others like them, as well as the efforts of hundreds of private individuals, we would know about one-tenth of what we do about the UFO phenomenon. These organizations exist in scores of countries; collectively they possess tens of thousands of members. They publish newsletters, books, and journals; they hold meetings; and above all they investigate reports of sightings. The quality of these investigations varies considerably; some are first rate, others can be called "investigations" only by courtesy. But the investigations do take place; their results are at least sometimes published in the

periodicals sponsored by the societies. And persons who wish to study the UFO phenomenon will find that the great majority of their information comes from these investigations.

These organizations increase UFO reporting because they encourage it in a number of ways. First, they provide sympathetic ears to the person who wishes to make a report. Second, they legitimate a witness's experience by publishing reports of other witnesses, by giving interviews to the press, and in some cases by persuading a witness's primary group that indeed such events can take place. Third, they provide opposition to the opinions of scientific and military experts. In short, they are advocates of the reality of UFOs, and their advocacy encourages reporting. Furthermore, they are often the recipients of the reports they encourage to be brought forward, which gives them more ammunition for the next round of articles. Here the vicious circle works in reverse: the encouragement of reports leads to more reporting, which leads to more articles advocating the reality of UFOs, which encourages more reporting, and so forth.

In view of the opposite stands of the scientific community and the UFO organizations, it is not surprising that scientists and UFO researchers frequently find themselves at loggerheads. The issue is all the more complicated in that some members of the scientific community (although very few) are UFO advocates and some of the strongest UFO critics are science writers rather than scientists. For instance, the astronomer J. Allen Hynek and Aviation Week editor Phillip J. Klass have frequently exchanged shots in print, Hynek on the side of UFOs, Klass against them (see e. g. Hynek 1975; Earley 1975). Occasionally the two sides sit down and appear to "reason together" (Sagan & Page 1972) but more often their relation is antagonistic and sometimes quite bitter.

UFO witnesses are sometimes caught in the middle of this struggle, and prominent cases often become battlegrounds where each piece of evidence for or against the witnesses acquires a political character. The UFO organizations themselves are often far from cooperative with each other, and compete for the most promising cases. Witnesses may find the attentions of two such organizations annoying or flattering, but the resulting confusion is seldom productive. And since the capability of local investigators is far from uniform, there may be further complications by incompetent investigation on the part of one or both organizations. Should two

organizations disagree on the validity of a case, the witnesses may find themselves defended by one organization and attacked by another. The effect of this polarization is to make the reporting of important cases a risky action. Thus, while UFO organizations can serve as advocates for the UFO witness--and in general this is how they function--they are far from lacking conflicts themselves, conflicts in which the witness may find himself embroiled.

In Conclusion

The considerations advanced above show information transmission about UFOs to be a highly complicated social process. Reference to other aspects of this process will be found in an earlier paper (Westrum 1977). My main concern here is to show that reports are a biased sample of experiences and that published reports are a biased sample of total reports. Working with published reports of UFOs should entail an awareness that the reports one gets are a far-from-random sample of the universe of experiences. Furthermore, the characteristics of the reporting process often change rather quickly, which defeats any attempts to use national news coverage of UFO reports as an index of the rate at which experiences are occurring. Furthermore, as I suggested earlier Chapter 5) regarding the anomaly witness, even which experiences are believed by witnesses to be UFO experiences can change over time. This adds still further complications.

I am not arguing that we should give up trying to measure the rate of UFO experiences, but simply that the right measures should be used. If we can understand the overall process by which UFO reports are transmitted, then we can focus attention on those aspects in which we are really interested. The rate of UFO experiences, especially of those which are close encounters, needs to be carefully monitored. If UFOs are, for example, indicative of a technology superior to our own, interactions of human beings with them are of the utmost importance. We cannot ignore them, but must pay attention to their rate of appearance, their reported nature, and the effects of their occurrence on society. But we must be willing to confront the complexities of UFO reporting and publication, if we are to make adequate judgments based on the reports which reach us.

The argument, if UFOs existed, we would certainly have better evidence for them than we do now, has a strong

sociological component, and involves assumptions about the transmission of information about anomalies that may not be correct. In a paper on the meteorite controversy (Westrum 1978), I have shown how this argument proved erroneous in regard to the evidence for meteorites. The scientists of the 18th century were too ready to assume that if meteorites really fell, then they would certainly know about it:

> And here I would venture to affirm, that, after perusing all the accounts I could find of these phenomena, I have met with no well-vouched instance of such an event: nor is it to be imagined but that, considering the frequency of such appearances, if these meteors had really fallen, there must have been long ago so strong evidence of the fact, as to leave no room to doubt of it at present [Pringle 1760, p272].

Actually the evidence did exist, but the scientists (for the most part) did not know of it. They overestimated the efficiency of the social intelligence system. There is no need for us to repeat the same mistake in the 20th century in regard to UFOs.

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Chapter 9

LIMITATIONS OF HUMAN VERBAL BEHAVIOR IN THE CONTEXT OF UFO-RELATED STIMULI

Michael A. Persinger

Human verbal behavior lies at the core of the UFO dilemma. This behavior is used by both the believer to prove the existence of UFOs (often with the implicit assumption of extraterrestrial origin) as well as by the disbeliever to dismiss their reliability. Few researchers have attempted to understand the limitations of this behavior when displayed within the context of bizarre, unexpected or fear-inducing UFO-related stimuli.

The researcher who uses only people's reports to study UFO phenomena is in a situation analogous to a physician who is given only two symptoms for a patient. If the two symptoms were nasal congestion and "feeling bad," then the physician could not accurately determine if the patient was suffering from a cold, an allergy, influenza or some other ailment, including drug addiction. Both of the symptoms can be produced by markedly different conditions. The use of human reports as valid measures of UFO events involves similar problems since several different psychological processes can produce these experiences. This chapter discusses the problems of human thinking and memory in the observation, recall and conceptualization of UFO phenomena.

UFO EXPERIENCES AND NORMAL BEHAVIORS

Many UFO investigators (e.g., Klass 1974; Millman 1976) who had little initial understanding of behavioral principles have recognized the important contribution of confabulation, fact-distortion, social induction and other behaviors to even "hard core" UFO cases. Unfortunately, this recognition often required years of research and the inefficient expenditure of resources, losses that might have been reduced if a fundamental understanding of verbal behavior in the context of UFO stimuli had been available.

Most people would acknowledge the profound influence of language and its rich emotional associations upon human activity. Direct and often exaggerated behavioral and physiological changes can be evoked by simple four-letter words even though they are associated with objects or events of ordinary psychological significance: sex, bodily processes, religion. They are more easy to recognize since they vary in different social situations.

Less obvious but equally potent reactions are associated with the connotations of words. The word "politician" applied to a particular person may evoke associations of deviousness, unreliability or manipulation, while the word "statesman" may evoke associations of trustworthiness, greatness and dedication. The simple procedure of placing a person's name in a sentence containing an aversive word like "homosexual" or "psychotic" usually is sufficient to alter future responses to that person. Words and combinations of words influence not only our perceptions and experiences but our memory of those experiences as well.

Such language effects are frequent sources of error and presumption when one attempts systematically to describe human behavior. Words like "mind," "awareness," "selfness," etc., carry unverified associations about the nature of human behavior. Many presumptions associated with these words, such as "thinking is a unique human behavior," "the reliability and validity of personal experience," "each person is an exception to the rule" or "man is a special creation" are unfounded empirically. Their repeated and indiscriminant use has often obscured human activity from human understanding.

Selected Characteristics of Human Verbal Behavior

A behavioristic approach to human activity attempts to diminish these linguistic problems by describing behavior in relatively neutral terms such as "response," "response patterns" or "stimuli." Such an approach attempts to isolate basic operations of behavior that exist independently of emotional or a priori assumptions about people. To a behaviorist, the human being constitutes a collection of many systematic responses that include general categories like skeletal muscle movements, visceral changes, blood chemistry alterations and verbal behaviors. Although some authors have argued that a behaviorist approach strips away humanity or re-

duces man to a behaving machine, such statements are more poetic than factual. Behavioristic methodology involves little more than the objective description and prediction of behavior. Value judgments are another domain.

Verbal behavior as defined by Skinner (1957) is behavior reinforced (i.e., a procedure in which a change in the frequency of a response is associated with a particular stimulus presentation), through the mediation of an audience. Talking and writing are examples of verbal behavior that can be recorded systematically and/or viewed by other people. Even "body language" can largely be systematized. Private responses or thoughts, however, which are indeed central to UFO experiences, cannot be viewed directly by other people. The audience for thoughts is the person in the sense that one system of responses within one's behavior acts upon other responses. Increasingly, experimental evidence suggests that the principles responsible for public and private behaviors do not differ significantly (Tucker 1970, McLeish & Martin 1975).

The different kinds of verbal behaviors are increased or decreased by their consequences (see for example Reese 1966, for an introduction to principles of reinforcement). Since a reinforcer is defined by its effects on the behavior (e.g., talking with UFOs), even public ridicule may be a reinforcer for some people, if it acts to change the behavior in a systematic way. Situations in which the reinforcer was present may be associated with completely different verbal behaviors from those in which the reinforcer was absent.

One would expect differential reporting of UFO events in different situations (talking to newsmen vs. members of the immediate family) by the same person. It would be inappropriate to suggest explanations such as "the person is fragmented" or the "person is lying" when this occurs. From an operational point of view, the person has simply learned to display certain responses in one situation and not in another. References to some type of subjective manipulation is not required and may lead to unfounded conclusions about what is causing or controlling the person's statements.

From a behavioristic viewpoint, there is no reason to impute motives to the reporter of a UFO event. Questioning the reporter about an unusual event in order to determine if he was "lying" would be inappropriate. Discrepancies between what a person thinks (private behaviors) and what he

says (public behaviors) may only reflect different reinforcement histories for the two types of responses. It is not yet possible to determine objectively if the person is aware of the discrepancy (should one exist) since awareness is not necessary for a causal relationship to exist between the two types of behaviors. Our primary measures of what a person allegedly "thinks" continues to be his public behaviors, i.e., what is said or written.

Language and private responses associated with words are learned. We are taught not only the simple labels for many objects and events in the world but also the explanations for how and why these events occur. Human beings are also taught explanations for why they have behaved in a certain manner. Phrases like "I think..." or "I believe..." are frequently used by individuals to explain their own behaviors. However, these words or explanations, especially after the fact, may have little to do with the real factors responsible for the behaviors.

Consequently, after-the-fact explanations in UFO-related situations should not be given any special considerations. When the UFO witness is asked why he did not report the incident to the authorities immediately, explanations such as "I was afraid of ridicule" or "I did not want to be considered psychotic" should not be given any special status in determining the validity of a person's comments. These statements are little different from phrases such as "I needed time to think up a good story" or "I waited for a chance to make some money." Many factors including those not involved with "awareness" may actually determine or "explain" a person's behavior.

Human cultures have stock verbal labels that are displayed whenever unusual, unexpected or strange events occur. Since unexpected events in nature are sometimes aversive or even deadly, words associated with these events can evoke intense anxiety or fear when they are mentioned. These words compose a conceptual core whose complicated network of associations can pervade the entire society. They form an emotional substrate to which all types of accidental, incidental or even inferred details can adhere.

These words are potent modifiers of all behaviors, including verbal forms like memory. Terms like "ghosts," "flying saucers," "evil spirits," "gremlins" or "the nether world" are but a small part of a very long list. Intrinsically

woven within these associations are emotion-laden words indicating supernatural, magical, ultra-scientific, religious, extrasensory or generally unknown things. They can connote extreme emotional categories of good or evil.

Changes in Behavior without Awareness

The different response systems that constitute a human being are correlated to different degrees. If two response systems actually are correlated (i.e., related in a consistent manner), then the activity in one system is associated with activity in another. However, if the two systems are not correlated, large changes in activity can occur in one without any observable change in the other.

This simple description is illustrated in many biological systems of the body. For example, if heart rate changes are correlated with the concentration of some blood chemical, then stimulation of heart rate would be associated with alterations in the concentration of the blood chemical. Likewise, stimulation of the blood chemical concentration would be correlated with changes in heart rate.

A similar relationship can occur between various verbal behaviors or between verbal behaviors and other biological systems of the body. If a person is given reliable training to perceive his heart rate--that is, awareness and heart rate are correlated--then a change in heart rate can be associated with the awareness of the change. A modification of awareness would be correlated with a heart-rate change.

On the other hand if awareness and heart rate are not correlated, large changes in heart rate could occur without any change in awareness. In this situation, the person would never "know" that heart rate changes had taken place. Within the context of a behavioristic theory, similar alterations in a person's memory or public or private behaviors could be learned or changed without awareness.

Numerous laboratory and clinical examples support this prediction. Not only can behavior be modified without awareness but after-the-fact explanations by people of their own behaviors can be inaccurate. However, since a person uses his or her own behaviors as the reference point of explanation, they may not only insist that they "know what's going on because after all, it's their body" but also be convinced of the validity of their interpretation.

Several studies by Hefferline and his colleagues (e.g., Hefferline & Perera 1963, Hefferline & Keenan 1963) demonstrated this phenomenon in principle. Human subjects were attached to extremely sensitive amplifiers that measured small muscle twitches well below their conscious detection threshold. A twitch in one particular finger was chosen as the response to be reinforced. Whenever the twitch occurred, the person, placed in front a reinforcer dispenser, was reinforced (in this case, received tokens that could be exchanged for money).

Predictably, the reinforced response increased in frequency of occurrence without the person's awareness. In fact, when the subjects were asked after the experiment about what they thought was causing the delivery of reinforcers, the answers given were as numerous as the subjects. Some subjects felt that their thoughts were controlling the delivery of reinforcers, others concluded it was a respiratory movement, while still others insisted it was some voluntary eye blink. The subjects were incorrect, but since the private responses were occurring at about the same time as the twitch, these responses were reinforced also even though they were not really responsible for the delivery of reinforcement.

Suggestion or "hypnosis" also can influence subjects' explanations of causes. In these situations, certain patterns of words appear to modify or alter not only the person's overt behaviors but also his or her private responses as well. Suppose a person who scores very high on a suggestibility measure (test) is given a post-hypnotic suggestion to get up from his seat, proceed to an adjacent window and close it, following a particular signal from the hypnotist. When the signal is given, the subject follows the suggestion and closes the window.

However, when the subject is asked "why" he or she closed the window, suggestible subjects are not likely to say "because the hypnotist gave me a suggestion." Instead, they are more likely to fill in the gaps with other explanations such as "I felt cold" or "I just had a sudden compulsion to shut the window, what's it to you?" The person's explanation for the odd behavior often is cast within his or her own motives or drives.

As the time since the induced behavior increases, the definitiveness of the subject's explanation increases as well. First, the answer might be "I thought I was cold"; later, it

might be "I was cold," while still later another more elaborate explanation may be employed. Without a public reference, the subject would rely heavily upon private explanations even if the behavior was extraordinarily out of place.

Modification of Memory

People's memories are frequently modified. These modifications, which occur especially for emotion-laden and old memories, are expected and normal occurrences. However, since people use memory as the basic reference against which they retrieve past experiences and explain their behaviors, these alterations may not be evident. If the only measurement of distance in the world were meter sticks and then suddenly all the world's sticks were altered, could you tell by how much they were altered? Would you recognize that they were altered at all?

The degree to which a memory changes is a function of the words or phrases associated with it. Memories can be considered special types of verbal behaviors that have been previously associated with words or thoughts paired with objects and events. Gradual and indiscriminant changes can occur in the actual memory of an event over time, depending upon the label used to describe it.

One of the most well-known experiments that demonstrates the effects of labeling upon recall was reported by Carmichael, Hogan and Walter (1932). Similar experiments and reviews have been reported by Riley (1962). Subjects were given a number of stimulus figures. One group was given one word list with the figures while a second group was given another word list. The subjects were then asked to reproduce or to remember these stimulus figures sometime later. As seen in Figure 1, the verbal label initially paired with the stimulus figures influenced the recall characteristics. For example, subjects who had been given the word "eyeglasses" in the presence of the fifth stimulus drew eyeglass-like figures while those that had been given the word "dumbbells" recalled dumbbell-like figures.

Whereas most people realize that extreme emotional arousal at the time of an experience reduces one's ability to make fine discriminations, they may not realize that words paired with heavy emotions can reduce or even distort the memories of an experience. For example, one prominent

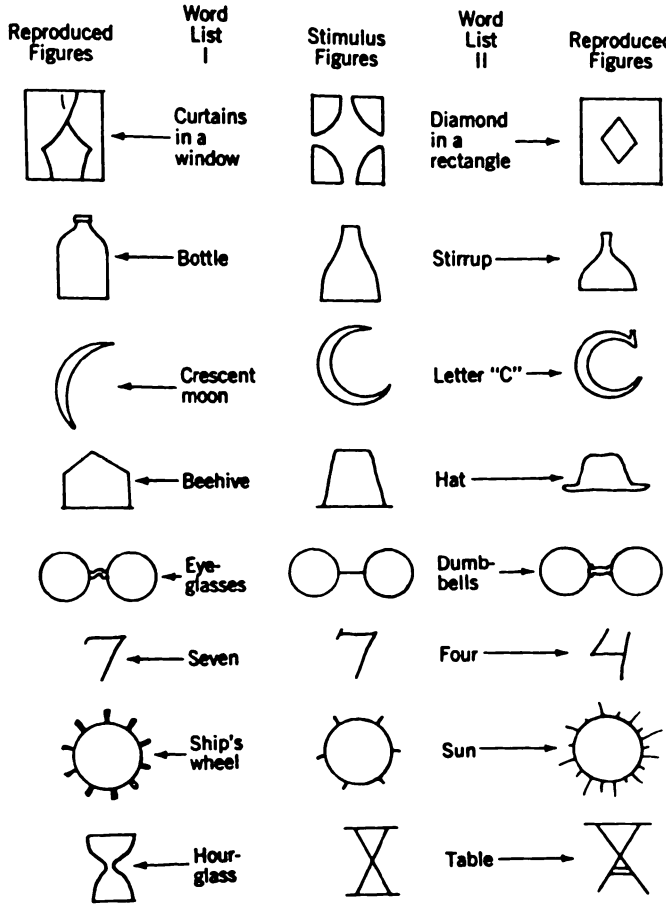

Fig. 1. The effects of different words associated with different stimulus figures upon the later reproduction (recall) of those figures (after Carmichael, Hogan & Walker 1932).

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scientist "clearly remembers" being afraid when he walked past a graveyard on the way to school when he was a young boy. However, his peer group reports no graveyard but only a large black dog which the scientist, as a boy, found clearly aversive. Such memories are felt to be just as real as those

which can be verified by other people. Neither intelligence nor education can always protect a person from these effects.

Subjective Experiences As Sources of Proof

Both errors and alterations in subjective behaviors are important since humans use such behaviors as a final reference to describe and "prove" their environment. When socially unverified phenomena are discussed, personal experiences are used as primary proofs. A common statement heard is "yes, I believe in UFOs because I saw one" or "No, I don't believe in UFOs because I have not seen one." Similar responses occur with other unverified speculations such as ghosts, apparitions, and ESP.

Sole reliance upon only private behaviors as an indicator of the brief presence of odd or unknown stimuli is prone to difficulties. On the bases of purely subjective experience a person may not be able to distinguish between the image produced by an actual (publically verifiable) stimulus, a subtle epileptic discharge, deliberate brain stimulation, suggestion or even simple expectancy. Any person, an Einstein, a president or a cretin, using only private experiences as a reference point, may not be able to discern accurately the nature of the stimulus.

Close-encounter UFO events as well as many parapsychological events are prime candidates to interfere with an otherwise orderly sequence of private responses. Since these events are often unexpected, abnormal and fear-related, behaviorist principles would predict these responses to be disrupted, distorted, and even suppressed as a normal consequence of these stimuli.

If in the presence of an intense, bizarre pulsating light, private behavior is disrupted, the person may recall periods of "time standing still" or "freezing." The person may remember only "bits and pieces" of events or background that would otherwise be easy to recall. If the behavior was suppressed totally, then the person might experience "amnesia" or "blankness" since the behavior was not being displayed during the presentation of the strange stimulus.

Periods of amnesia following the suppression of private responses by some intense stimulus are prone to a normal process called "response substitution." In this process

the memory gap is filled in by other responses, primarily fragments from other memories or fantasies. If the person has paired the term UFO with the amnesia or, even more unfortunately, some UFO researcher has shown the person an illustration of an "alien being," then the interval could be filled with a rich variety of fantasy.

The disrupting nature of UFO-related words or stimuli upon the private behaviors of normal people have not been a primary concern of UFO researchers to date. Investigators, especially scientists without psychological training, have been prone to accept a person's report at face value or according to some irrational criteria such as "depending whether the person displayed emotion under hypnosis." These investigators often conclude, "Well, first I did not believe in UFOs. But so many people have had sightings that it would be hard to dismiss the entire matter as nonsense. I have interviewed UFO eyewitnesses and have come away impressed. These people seem down-to-earth and sincere."

Sincerity is not a proof of a reporter's reliability or the report's validity. If the private behavior has been modified by either the word-label or by the stimulus itself, no amount of solicited recall, polygraphic measure, hypnosis or emotional commitment will isolate the actual details of the event.

The Emotionally-Loaded Term UFO

The general pattern of behavioral changes due to the application of an emotionally-loaded term like "UFO" or "spirit" is predictable. Suppose a normal person is alone one night. Suddenly, he or she is presented in the sky with a transient, novel and potentially fear-inducing stimulus. The first response is to describe the odd event by using the more routine everyday labels such as "a meteor" or "atmospheric reflection." Once these stock labels are exhausted, a normal response is to use the "catch-all" term of our society, in this case "UFO."

From the time the term UFO is paired with the odd observation, a series of modifications in memory and other behaviors could occur. Suppose the term UFO has been paired with the term "flying saucer" which has been paired with stories about "alien humanoids" and "space ships." As the initial observation and short-term memory trace (which

lasts for about 30 seconds) begins to fade, the images associated with the label used to describe the event begins to influence the memory. Since memory is the means by which a person recalls the measurement of the environment (including the sense of "time-flow"), the person would not "know" any modification had taken place if he relied upon his own experience.

Whereas initially the person might report a glob of light, he or she might later report a disc with windows. Still later, the person may "remember" even more details such as strange humanoids dressed in shiny suits. If a similar stimulus had been presented to a person from another culture and he had labeled the same event with a term like "dragon," we would expect progressive alterations in the description of the event. After a short while, the bright light in the sky would be remembered as a long-tailed, ferocious beast.

Learning principles indicate that the primary sources of the images and details associated with UFO-like terms would be derived from indirect or incidental learning when the person is not "paying attention" or not actively participating in the learning. Short news reports, television series like Star Trek, and even the occurrence of the terms UFO and flying saucer together in the same news article can be sources of impressions. Movies are especially rich sources of such associations.

Learning principles also predict that the memories of the events will not remain constant. As the person who has had the close encounter acquires more details about UFOs, the more likely the recalled events would change. The person would not realize that the new information has actually modified his memory. Instead, he would report that the new details "had been repressed" or "forgotten." Klass (1974) reports the persistent change that occurred in the descriptions of spacecrafts and creatures in the Socorro landing and the Pascagoula abduction cases.

Often UFO-related terms are associated implicitly with not only extraterrestrial connotations but with implications of superior creatures, god-like beings or parental figures, such as spirit guides, cosmic masters and related surrogates. If such associations have great personal significance and are interwoven with the person's self-concept, then more extensive behavioral changes would tend to occur. The

effect would be not unlike a religious conversion characterized by sudden behavioral changes including reports of being "selected to carry a special message," evangelistic zeal and indefatigable proselytizing, and/or total commitment to the belief, no matter what counter-evidence might be presented.

PROBLEMS OF SUGGESTIBILITY

Humans are verbal beings. They label their environment with words and respond, often with pervasive and intense behavioral changes, to profanity or to words like "death," "sex," or "god." The verbal labels used by people to describe their private experiences are often acquired from their parents, a learning factor that gives parental symbols great power for control. If a person is told enough times that he or she is stupid, not surprisingly, he or she will tend to behave in ways that have been associated with the word stupid. The person may even think that he or she really is stupid. All of us are immersed in a complex tangle of verbal behaviors that may be responsible even for our awareness and our self-concepts.

Suggestibility: From Subject to Scientist

While all people, by virtue of their verbal behaviors, would display some degree of suggestibility, people involved with UFO phenomena as witnesses tend to display what is called a "grade 5" syndrome (using a 0 to 5 scale). According to Spiegel's (1974) classification, these type of people may be described as classic somnambulists or deeply hypnotizable individuals. They sustain bizarre posthypnotic muscular changes and hallucinatory responses to a given cue and/or global amnesia for the entire hypnotic episode. Spiegel has estimated that this type of individual comprises not more than 10 per cent of the population.

People who demonstrate the above characteristics also tend to display several other behavior patterns. These are a readiness to trust others, a relative suspension of critical judgment, a telescoped time sense (meaning that when they are regressed hypnotically, they report things in the present tense), a ready acceptance of logical incongruities, an excellent memory, a capacity for intense concentration during which time "awareness" of the environment is not displayed, and an inflexible core of private beliefs. Under duress, the

"grade 5" subject becomes the so-called hysterical patient. Spiegel and others have found that neither intelligence nor training is a protection against the effects of this behavioral pattern.

Examples of suspension of critical judgment and easy acceptance of logical incongruities are numerous in the UFO literature. Klass (1974) gives excellent detailed analyses of the verbal statements from close encounter witnesses. For example, in the Indrid Cold incident, the witness remembers rolling down his car window in order to communicate "telepathically." Another instance in the literature involved a witness who saw spacecraft in downtown city areas (the same report in an isolated, wooded area where UFOs are expected to land would have brought out the investigators in droves); this witness found no logical incongruity in the fact that no one else saw the UFO.

The emotional loading of these incongruities can be seen in a case from my files. One close encounter witness began crying and became quite verbally aggressive (predictable behaviors when belief responses are frustrated) when I suggested that the UFO she had seen was not extraterrestrial but an unusual geophysical phenomenon. In her opinion, despite the fact that "they" must have an advanced technology for space travel and personal defense, "they" were afraid to land because human beings might hurt them, and if we were not careful "their" feelings would be hurt and "they" would leave.

The tendency towards a rigid core of beliefs is also evident within the population of people who claim close encounters. Once the UFO experience has been associated within belief-related behaviors, there is little possibility of modifying the behavior or offering acceptable counter-evidence. It is not surprising in this context that people who are hypnotically suggestible are also prone to score higher on religious scales. The religious connotations--for instance various god-like features of the UFOnauts and promises to return again to select the witness(s) as a bearer of a special message to mankind--are not spurious.

As Klass (1974) and Millman (1976) point out, the actual physical evidence from UFO "landing" sites is at most tenuous. Consequently, great emphasis has been placed upon any alterations in the viewer's body. Although a few cases indicate irradiation-like dermatological changes (which how-

ever can be accommodated within other models--see e.g., Chapter 13), most reports involve the appearance of warts, wheals, erythematous blotches and similar reports on the skin. An example of these "lesions" was reported to me by a woman who was 25 years old and alone in a midwestern Canadian town at the time of the incident.

About 0400 hours in the summer of 1970, the night was very hot and sleeping was difficult. The subject went to the window and saw what she called a UFO. She reports that "it was luminous and very bright-white while smaller blue lights were slowly increasing and decreasing in intensity." She watched it for about eight minutes and then went back to bed. Suddenly, the room became misty and clammy, as if the room was filled with fog. She felt something was in the room with her but she was too afraid to turn around and look. She felt something touch her neck, a sensation that was something like an electric shock. At this point, her body began to vibrate violently. After it had subsided, she went to the mirror in the bathroom and looked on her neck upon which a small red spot had appeared.

The "lesion" was red for a couple of days and then developed a burn-like scab. She showed the "lesion" to several people who did not believe her story, although her sister suggested she "had been monitored." The subject recalls that at the time of the event there had been unexplained footprints in the area and many people had reported UFOs; apparently, a horse was found in the vicinity with its vital organs missing. The woman commented that this event had been the most unusual one in her life and that she would never forget it.

Such "lesions," from burn-like marks to warts, are often used as "proofs" by close-encounter witnesses. However, similar dermatological alterations can also be induced in highly suggestible people. Although interesting, they are certainly not proof that what the person reported represents the actual sequence of events. If, as Spiegel suggests, people who display grade 5 syndrome comprise as much as 10 per cent of the population, the probability that morbid alterations in physiology will occur in certain persons in frightening contexts becomes extremely high.

The suspension of critical judgment or the ready acceptance of logical incongruities by scientists who are investigating UFO episodes are especially important problems.

The published works of some scientists working in the field of UFO studies indicate a failure to apply the same degree of rigor that they have employed in their own field of specialization.

Many physical scientists simply are not prepared to deal with the subtle and complex factors that control human behavior. They rely upon "common sense" rather than call upon the services of others trained in such fields as experimental, social or clinical psychology, or sociology. Having exhausted their repertoire of "explanations," usually extracted from their areas of specialization, they sometimes make statements like "I believe the witness," or "he seemed like a sane person" and related value judgments. When this happens, they are no longer acting as scientists but as average people with an unsubstantiated opinion.

Since clinical evidence indicates that neither education nor academic notoriety protect people from suggestible stimuli if they are "grade 5" responders, comments without data support from individual scientists not familiar with psychological principles should be viewed cautiously. The high-powered, interpersonal nature of interviews with people who have had UFO experiences can modify the experience of even the most objective scientist. Scientists are human beings.

Regression and Suggestion

A behavioral procedure popularly called "hypnosis" or "regression hypnosis" is a frequent source for unfounded conclusions concerning the validity of an alleged UFO encounter. Few people realize that rich fantasies and complex confabulations can be reported by normal individuals when given appropriate suggestions. Hypnosis is no guarantee of the validity of the person's reported close encounter. It is not a special psychological state or condition that "unmasks the bare truth of a situation." In fact, the so-called trance condition is a peripheral feature of suggestion procedures. Analgesia, age regression, time distortion and fantasy that seems like reality can be produced in suggestible people without the accompanying trance condition.

The use of hypnotic procedures to ferret out the truth about unusual events is viewed with skepticism by objective researchers. The subtleties of language used in the testing situation is a potent factor in determining the actual content

of the subject's report. A subject who is hypnotized within the context of an old house, for example, even without direct mention of haunted houses, may respond to the implicit associations with the surroundings and to the facial cues of the hypnotist. In so-called time regression hypnosis, whereby the person is supposed to relive previous lives, the specific wording of the instructions determines the nature of the susceptible person's response. As Whitton (1976) aptly pointed out, the instruction, "Go back to the time of Egypt" or "Did you have an incarnation at the time of the Pharaohs?" is sufficient to generate a flurry of fantasy.

Despite the questionable nature of the hypnotically-obtained proofs of UFO experiences, avid UFO believers have never asked critical questions about this measurement procedure. For example, does any hypnotically susceptible person not respond to the suggestion "you are reliving the details of your UFO experience" with bizarre reports and vivid details similar to "real" cases? Are suggestions about close UFO encounters sufficient to elicit obscure patterns of report (allegedly unique to UFO abductions) in people who have never seen a UFO? In short, are the fantastic, complex and fad-like descriptions of UFO encounters the consequences of fantasy evoked under biased processes of hypnosis?

This possibility must be given serious consideration in light of the experiments by Lawson (1977). Apparently, people with no significant knowledge of UFOs (even those who deny interest or knowledge) generate complex and picturesque fantasies when imaginary abductions are suggested following hypnotic instructions. Subjects in the experiments described and drew detailed pictures of supposed UFO entities and crafts, strikingly similar to the reported experiences of "real abductees." An objective comparison of the fantasies given by the hypnotized subjects in the experiment with reports given by "real abductees" displayed no discernible differences in several measures that included story theme, strangeness of the data and ESP-like conditions. Lawson's results strongly suggest that regression hypnosis procedures applied to UFO abductees do not elucidate the truth, but rather confound the problem further by stimulating fantasy.

WORD GAMES AND THE UFO CONCEPT

Words and phrases are used not only to describe en-

vironmental events but to prove or demonstrate the existence of things we cannot perceive directly. The logic of language contains built-in pitfalls that have caught many unsuspecting scientists and lay people as well. There is nothing special about proofs purely by words; these verbal tools can be used and abused.

The Homogeneous Label Problem

There are only a few thousand words in a person's verbal behavior to represent or label potentially millions of separate, individual events. Most of the words are allocated to common everyday objects like chairs, automobiles, people, etc. Only a few labels remain to represent the myriad of transient, infrequent and unexplained natural events.

By numerical necessity, many different events that share gross similarities will be given the same label. Thousands of different environmental events observed as "bright, odd-moving and short-lived lights" are given the same label. However, such labeling is not a neutral action. An implicit assumption that sometimes results is that "everything that shares the same label shares the same origin."

Such arguments have serious theoretical consequences since a singular hypothesis cannot explain or describe all types of UFO cases. As a result, many potentially valid theories may be rejected prematurely because they cannot explain all UFO episodes. Within this mentality, the UFO investigator committed to a particular point of view asks "how do you explain event number 126 with your theory?" In these situations, the "crucial event" is usually one that has been experienced personally by the researcher.

Considering this pitfall of language, the limitation of one's ability to answer the above question is more likely to be due to the labeling procedure than to the alleged elusiveness of UFO phenomena. Suppose we placed the label "wheel" upon anything that displayed properties grossly similar to a round moving object. It would be erroneous to assume that all "wheels" had the same source of movement since there are so many different kinds of propulsion mechanisms for surface vehicles. If one tried to understand the mechanisms by which "wheels" move, then any given single theory, e.g., gasoline engine, horsepower, muscular strength, would not be able to explain all the cases of "wheels." The origin of wheels would become a perennial puzzle.

A more serious effect of assuming homogeneous origins for all events that share the same label is the complete rejection of the UFO problem. With this argument, the verification of one UFO case as fraudulent (or due to some misinterpretation of a known object such as a weather balloon) would result in the erroneous exclusion of all UFO phenomena. UFO investigators as well as the public must learn that UFO phenomena may involve a wide range of sources. While some may occur frequently, others may occur but once.

The "If Not This, It Has to Be That" Syndrome

Humans tend to respond to specific stimuli with learned patterns of behavior. When routine labels of explanation do not fit an odd event, we tend to use catch-all labels such as demons, gods, bad luck, fate or "extraterrestrians." Some psychologists and sociologists argue that man requires a certain amount of structure and regularity in his life. Without some type of prediction-belief, man would be incapacitated by anxiety. The catch-all words contribute to this structure by offering explanations for unexpected, unusual and potentially harmful events. They are used as a last resort.

This general pattern in human behavior is seen in the language of some scientists and pseudoscientists working on the UFO problem. First, odd events are scrutinized and analyzed against the answers they have learned. When all else fails, they invoke the remaining option they have been taught. This syndrome is illustrated by one UFO enthusiast (whose training was in highway inspection) who concluded that since the consistency of evidence over time and place eliminated theories of UFO sightings as merely misperceived natural phenomena, therefore, the only explanation was that Earth was being visited by extraterrestrial beings.

People who reason in this manner do not appear to realize or at least acknowledge their meager understanding of the earth's natural environment. They ignore the as yet unexplained mechanics of large-scale geophysical and meteorological phenomena, some of which are discussed in Chapter 13 and elsewhere (Persinger 1976). In short, they dismiss all possible intervening options and overlook the obvious one: insufficient data.

Over-Inclusion

Over-inclusion refers to the process whereby established scientific data and principles sharing a common verbal descriptor are incorporated into the explanation. For example, biorhythm arguments involving alleged rigid 23-, 28-, and 33-day cycles in human behavior have received recent public attention. To bolster their claims, ardent supporters of the biorhythm theory (e.g., Mallardi 1977) quote as proof scientific data that actually are not even related to the basic speculation but only share the label "biological rhythms."

Binder (1967), for example, uses similar techniques. After presenting a series of UFO-related reports, he concludes that all these events share "the common denominator --magnetism or electromagnetism." As proof of electromagnetic propulsion by UFOs, he then describes a series of scientifically known phenomena that also share the label, "magnetism." He discusses the earth's magnetic tail, the solar wind, and related principles, which are for the most part irrelevant to his thesis. The scientist must be wary of words that subtly have become catch-alls for explanations. Unfortunately, the general use of the word magnetism with its connotation of unseen forces has sufficient associations to cause people to automatically relate it to the core of the UFO phenomenon.

Proof by Probability

Another approach that is sometimes used by the enthusiastic proponent of the extraterrestrial theory is the probability argument. The basic thesis is that with such large numbers of star systems in the universe, the law of probability would indicate that there should be intelligent life somewhere other than Earth. Although seemingly a profound statement with great potential impact, the content is unimpressive when one understands the nature of a probability statement.

An event in a universe described by "probability" only approaches zero. Since an event probability can never reach zero, just about any possibility is "probable." The statement does not offer information about where, when or if such life exists. No doubt, there may be intelligent life elsewhere in the universe (such a statement is so inclusive as to become trivial), but existing UFO data have not proven the existence of such life forms.

Proof by Elimination

Another common approach taken by proponents of the extraterrestrial theory of the UFO phenomenon is that of proof by elimination, which is basically a more elaborate form of the "if not this, it has to be that" kind of response. In using this approach, each available theory is checked against the available "data"--usually with little question of the data's validity or reliability--and the theory that remains is taken to be the only possible answer. Usually, the theory that remains is so general that it can explain almost anything. There have been times in history when all natural events were explained with single labels such as "god's will." While these explanations have great explanatory power they have very little predictive capacity.

Once an empirically unfounded, highly general and non-testable assumption is made after-the-fact, explanations can be generated for almost any event. Thus if one assumes a priori that UFOs are alien spaceships then one can "explain" the alleged observations within that context. Since right-angle turns and high velocity properties are characteristic of some UFOs, the use of this assumption forces explanations such as "robot ships" (since "no humanoid could take such stresses"). If the luminosities change shape or "divide" into two or more objects then one is required to postulate different "kinds of ships," with labels such as "mother ship" and "scout ship," etc. If the luminosities are assumed to be spaceships and "fade off the radar screen," then one is forced to assume complex matter-energy reactions or far-fetched concepts of "dimension traveling." As the phenomena become more unusual, the explanations tend to become increasingly contrived.

It should be remembered that a significant difference exists between a theory and general speculation. The statement that "extraterrestrial visitations are proven by odd things people report" is not a scientific theory. There are no internally consistent or quantitatively testable hypotheses that can be generated from this statement. The statement does not allow the determination of when, where, and how the mechanisms are involved that result in the observation of these odd events.

In the final analysis, the major differences between science and superstition is the ability of science to make quantitative predictions about the occurrence of some phenom-

enon. Statements such as "a UFO will be spotted somewhere on the earth in the future" is not a quantitative prediction. To date, the author knows of not a single extraterrestrial UFO speculation that can be translated into a scientific theory with rigorous testability. When the unreliable and artifact-prone measure of human verbal behavior is removed, the remaining "evidence" is reduced to burnt twigs, skin irritations, blobs of unspecified lights, radar returns, and an occasional bizarre death.

The final argument evoked by adherents to some form of extraterrestrial explanation, despite their having been given an explanation of the methodological and measurement problems involved with this option, is the invariable question: "How do you know they are not there?" The answer that I give is "I don't," but the question is a fruitless one; it could be evoked for almost any series of words. I could speculate that we are all being constantly observed by invisible non-physical pink elephants. The viewer who does not have a personal preference for the explanation might say there is no evidence that they exist. My response would be, "Can you prove absolutely that they don't exist?" Similar arguments have been used by pseudoscientists (e.g., Spraggett 1975) to prove "the unexplained" and by religious adherents to prove the existence of God.

A NEW APPROACH IS NEEDED

The UFO problem has many predecessors in science. Such problems have been solved when more and more data were collected in a systematic and dispassionate manner, and when the empirical boundaries of the question were acknowledged. What is required now as before in the midst of a seemingly insoluble problem is the ability to say there are still insufficient data or, more honestly, we just don't know. As scientists, we simply cannot reliably derive a fundamental understanding of the phenomenon until sufficient reliable and valid data have been collected. Since human observations and behavior are methodologically questionable in the presence of UFO-related stimuli, independent instrumental sources must be involved. Once the primary human observational and recall elements are removed from the UFO problem, the available UFO evidence becomes photographs of luminous patches of light, electromagnetic alterations, or other localized but not particularly impressive physical manifestations.

However, the conclusion that there are insufficient data must not be regarded as license for indiscriminate speculation by persons who influence the reading material of the average person. As before in the history of science, problems plagued with methodological difficulties, unreliable instrumentation or questionable theorization have attracted unqualified writers. Even when sufficient data have been collected to allow definitive statements to be formed, the scientist is still confronted with all kinds of myths and misinterpretations, generated before, in the minds of the general public.

A first step to the solution of the UFO problem involves familiarizing the citizenry with the basic problems of collecting information and developing theories. This can be done by discussing the limitations of measurements of UFO-related incidents and the varying interpretations now available of the meaning of those physical artifacts which so far have been offered as evidence. Rarely do popular accounts mention the limitation of the measurements made or the arbitrary nature of the interpretations completed.

A second step, perhaps the most difficult, involves demonstrating the elementary difficulties of human verbal behavior. Perceptions and present experiences are influenced by our expectations and our past experiences. Human verbal behavior usually becomes unreliable in the midst of transient, unexpected and novel (unknown) events. The population must learn that attempts at reporting such events, while involving perhaps unusual verbal behavior, does not mean that the persons reporting are "nuts" or "sick." Their behavior is normal and should not be stigmatized.

Perhaps the UFO dilemma will be solved only when some extraterrestrial beings are systematically observed by the majority of the population. However, until that time comes, as in times before in the history of science, man's most reliable tool for describing and understanding the unknown portions of the environment are systematic procedures and measurements. In the past, some of man's most cherished beliefs have been eliminated once the unknown was clarified. At present, the dispassionate and systematic application of known behavioral principles to the UFO problem suggests that the major component of the phenomenon involves confounding artifacts from human verbal behavior.

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RECONSTRUCTION OF WITNESSES' EXPERIENCES OF ANOMALOUS PHENOMENA*

Roger N. Shepard

Especially difficult problems of scientific methodology beset attempts to study any phenomenon so rare, fleeting, and unpredictable in its occurrence that the only sources of evidence are witnesses who happened, by chance, to be at the right place at the right time. Nevertheless, a number of phenomena of potential scientific interest are more or less of this kind--ranging from such widely recognized physical events as auroral displays, meteors, fire balls, ball lightning, and other luminous displays associated with tornadoes and sudden geophysical disturbances (Catoe 1969, Corliss 1974, Powell & Finkelstein 1970; Richter 1976; Vonnegut & Weyer 1966), to such generally controversial phenomena as "bigfoot," the "abominable snowman," and the "Loch Ness monster" (see e.g., Mackal 1976), phantasms or apparitions and so-called "poltergeist" manifestations (e.g., Tyrrell 1963), long-delayed radio echoes (Villard, Fraser-Smith & Cassam 1971) and of course the phenomena referred to as unidentified flying objects (Catoe 1969; Condon & Gillmor 1968; Hynek 1972; Hynek & Vallee 1975; Jacobs 1975; Sagan & Page 1972).

These last-mentioned phenomena, the UFOs, present perhaps the broadest and most puzzling challenge to science and scientific methodology. For, in all likelihood, the phenomena subsumed under the single heading "UFOs" are in fact very diverse with respect both to the kind of scientific

*The development of the techniques described here grew out of methodological work on psychological scaling and data analysis and on substantive work on human perception, memory, and imagery--supported, over a number of years, by the National Science Foundation, particularly through grants GS-1302 and BNS-75-02806. The author is indebted to the Foundation for its support and, also, to Richard Gauthier and to the former Shelly Meltzer for their technical assistance in the particular work reported here.

expertise required for their study and to the nature of their potential implications. Even after we eliminate the many cases that might plausibly be attributed either to misidentification of familiar phenomena or to deliberate deception, we are left with a large and heterogeneous set of perplexing cases. Investigators from different fields have tried to explain various subsets of these residual cases in terms of socio-psychological aberrations (Grinspoon & Persky 1972; Jung 1959; Meerloo 1968; Warren 1970), sensory-physiological anomalies (Mauer 1952; Youtz, in Saucers explained, 1960), atmospheric distortions (Liddel 1953; Menzel 1953), electrical or plasma disturbances akin to ball lightning (Clarke 1959; Klass 1968; Shepard 1967b), physical probes sent to Earth by some technologically advanced extraterrestrial civilization (McDonald 1967, 1972; Oberth 1962), or something entirely beyond our present understanding--whether paraphysical, parabiological, or parapsychological (Clarke 1953; Vallee 1965).

So, although I have a long-standing interest in the methodological problems of studying anomalous phenomena in general, I focus here, for purposes of illustration, on some of the problems that arise in the investigation specifically of unidentified flying objects or, to use what seems to me an appropriately less committal label, the problem of unidentified aerial phenomena. I approach this problem from the background of a research psychologist whose own work has principally concerned substantive issues of human perception, memory, and imagination (e.g., Shepard 1975; Shepard & Podgorny, in press) and methodological issues of discovering and representing patterns hidden in large arrays of data (e.g., Shepard 1974; Shepard, Romney & Nerlove 1972).

Although the psychology of the UFO witness is an unavoidable aspect of my present topic, it is an aspect best left for specific examination, in depth, by those who have specialized in the rather different fields of social, personality, abnormal, or clinical psychology or psychiatry. From my own standpoint--of one concerned with methodological issues of perception and memory--I want to consider the witness not as the principal object of study but rather as our only available source of data concerning a past and possibly objective event of potential scientific interest. The particular recommendations that I shall propose represent an amplification and extension of a short statement that I prepared earlier (and, necessarily, rather hastily) at the invitation of the Committee on Science and Astronautics of the U.S. House of Representatives in connection with their 1968 Symposium on Unidentified Flying Objects (Shepard 1968).

Special Difficulties Confronting the Study of Rare and Anomalous Phenomena

We commonly draw a distinction between experimental and observational sciences. Experimental sciences have the advantage that we can test or retest a theoretical prediction at any time and place simply by arranging the prescribed antecedent conditions within a suitably closed or isolated system and, then and there, observing whether the predicted consequences do or do not ensue within that system. Physics, chemistry, and biology all provide impressive examples of the advances in theoretical understanding and practical control that have flowed from the experimental method. In observational sciences, by contrast, the antecedent conditions are not under our control and, so, we can only wait passively until the prescribed conditions occur in the course of nature. Moreover, we can be prepared to take full scientific advantage of such an occurrence, with trained observers and appropriate measuring and recording instruments, only to the extent that our knowledge of the phenomenon under study permits us to make reasonably reliable predictions of at least the appropriate time and place of the occurrence--if not its detailed properties.

Within the observational sciences we therefore need to make a further distinction on the basis of the extent to which we can anticipate the time and place of the event to be observed. Even though purely observational, astronomy has achieved a high level of quantitative precision and predictive power because the systems that are studied are for the most part sufficiently closed to outside influence and yet open to outside inspection to make possible precise external prediction. Other observational sciences, such as meteorology, sociology or political science, are not so fortunate.

Of course these various methodologies shade off into each other within most all of these scientific fields. Even experimental physics becomes relatively passive and observational in awaiting the detection of rare events of potentially great theoretical significance--such, for example, as those indicative of gravity waves, charmed neutrinos, or magnetic monopoles. And at least some branches of astronomy may become more actively experimental as a result of our newly acquired ability to launch probes into interplanetary space.

In the case of unidentified aerial phenomena we encounter the very most difficult circumstances under which to

establish an observational science; namely, those under which there is, as yet, little or no discernible pattern to the occurrences in space or time. In contrast to the situation facing the investigator of the Loch Ness monster, where there is some localization in space, or of auroral displays or meteor showers, where there is often some localization in time, the situation facing the investigator of UFOs includes no advance information concerning localization either in space or in time sufficient to justify the setting up of expensive devices for physical measurement of recording. True, some of the more enthusiastic students of UFO phenomena have urged the construction of a world-wide network of around-the-clock automatic wide-angle cameras, magnetometers, radars, or spectroscopes; but the general population understandably shows little inclination to support the establishment of a system with such vast fiscal consequences and such uncertain and, many think, small probability of practical return.

Is a scientific study even possible when, as under the circumstances contemplated here, the phenomena exhibit no predictable pattern in space or time and can not, when they do occur, be subjected to any sort of physical test or measurement? I claim that, although these circumstances do make scientific study enormously more difficult, they do not render it impossible.

The Scientific Study of Events That Are Unpredictable As to Time and Place

The scientific investigation of a set of phenomena becomes possible whenever those phenomena exhibit some discernible degree of order or pattern. As we already noted, scientific study is greatly facilitated when, as in astronomy, the order strongly emerges in the form of a space-time pattern of the events of interest--such, for example, as eclipses. For, then, a significant part of our science may concern the prediction and explanation of this space-time pattern itself--quite apart from the internal structural details of any one event, when it then does occur. As we also noted, however, to the extent that we begin to establish (i.e., predict) a space-time pattern of the occurrences, we can arrange to have suitably trained observers training appropriate instruments, with high resolving power (and, consequently, with narrow windows in space and time) on just the right spot at just the right moment. In this way, not only the mere

occurrence of the event but also the structural details internal to the event can be brought under investigation. Not only do we confirm the occurrence of the predicted eclipse, we also use the special conditions afforded by the eclipse to study the solar corona or to test predictions of general relativity concerning gravitational deflection of rays of light.

However even if we are unable to discern any useful space-time pattern in the occurrences of events of some type, the possibility remains that there is some order or regularity discernible within those events whenever and wherever they do happen to occur. That kind of internal order alone is, in principle, capable of supporting a scientific study. Thus although the time and location of particular events within a bubble chamber are entirely unpredictable, whether they systematically do or do not exhibit a certain property when they do occur can have profound consequences for elementary particle physics. Or, in the quite different field of psychopathology, even if it was the case that some psychological phenomenon (a psychotic episode, say) occurred wholly unpredictably--striking any person at any time, quite at random--we could still study the internal patterns of such episodes when they do strike. We might for example find that when symptom A appears it is usually accompanied by symptom B, but seldom by symptom C, and so on. This, too, is a kind of predictability and can even lead to a degree of understanding and perhaps, eventually, to a method of treatment.

Similarly, in the case of reported experiences of unidentified aerial phenomena, we may be able to discover some regularities or patterns within these experiences even though no clear pattern emerges in their mere occurrences (except possibly for the tendency to unpredicted local concentrations in space and time). As Price-Williams (1972) has noted, in his thoughtful discussion of methodological issues, beginnings in this direction have already been made by the National Investigations Committee on Aerial Phenomena (NICAP), in its attempt to correlate reports of color of luminous UFOs with their apparent motion (Hall 1964, p186), and by Vallee and Vallee (1966, p186), in their attempt to correlate estimated size of UFOs with their reported distance from the observer. This is not to say that efforts--such as those of Michel (1958) and of Vallee and Vallee (1966)--to detect some overall space-time pattern merely in the occurrences themselves should not be continued as well, but only that the attempt at a scientific study need not await a conclusive outcome of those efforts.

The Involuntary Human Observer As a Source of Scientific Data

The problem remains that since the unpredictability of the occurrences of the events in question precludes reliance on scientifically trained observers or physical instruments, our principal source of data resides in the memories of a relatively small set of human observers selected, presumably, by chance and not because they are especially observant, knowledgeable, or articulate. Moreover, even the most conscientious and cooperative observers, being only human, are subject to distortions of perception and memory when the event of interest was short-lived, unfamiliar, ambiguous, or contrary to expectation; when the circumstances were frightening or stressful; or when the recall or report of the event was considerably delayed or was influenced by subsequent information or by leading questions (Bartlett 1967; Buckhout 1974; Loftus, Miller & Burns 1976*; Rosenthal 1966).

Cognitive psychologists generally regard perceiving and remembering as constructive processes in which, for example, an internal representation of an external three-dimensional object is "constructed" on the basis of the often shifting, ambiguous, or incomplete information available in memory or in the two-dimensional perspective projection incident on the sensory surface (Gregory 1970; Neisser 1967; Shepard 1975). The more inadequate the external stimulus or the memory trace of such a stimulus, the more the internal representation of that stimulus will reflect tendencies of the mind rather than properties of the stimulus. In this way we can explain why Percival Lowell "saw" canals on Mars (Hoyt 1976; Ley 1963) and why earlier astronomers misperceived the structure of Saturn and its rings and of the spiral nebulae (Gregory 1970, pp120-123).

The intrusion of such processes into UFO reports in particular has been instructively documented by Vallee and Vallee (1966, pp110-113). They present reports in which a remarkable variety of visual properties were ascribed to what turned out in every case merely to be the planet Venus. These properties included the shape of an oval, egg, pear,

*More extensive information than that provided in the citation appears in an unpublished manuscript by Loftus, Miller and Burns entitled "Integration of Verbal Information into Visual Memory."

or circle with a "triangular top"; the size of a pin-head, pea, dime, baseball, car headlight, or B-52 bomber; changes of color between red, orange, amber, white, green, and "metallic"; motions of vertical and lateral displacement, or of spin or rotation (in one case, estimated at one revolution per minute!); internal details of a moving black speck, shining white points, or "scaly" surface; and luminous behavior such a fluorescent or flickering appearance, shining mist, or emission of beams or points of light, or even "blue flames." (For examples of comparably elaborate hallucinatory embellishments that can be produced in the laboratory with no more than a flickering light, see Small & Anderson 1976.)

In the case of closer or more dramatic encounters with UFOs, we deal, in addition, with observers who often have good reason to be reticent in view of the likelihood that their reports will be received with incredulity or ridicule (for dramatic examples see, e.g., Fuller 1966, pp211-220; Weitzel 1967). Clearly, then, many of the problems with which we are faced are of a kind more familiar to the psychologist than to the physical scientist.

This is not to say that UFO reports themselves are generally to be explained in terms of purely psychological causes such as afterimages, perceptual illusions, hallucinations, delusions, or attempts to gain notoriety--though we must be vigilant for all of these possibilities. There just are too many cases in which correspondences between independent (and sometimes scientifically trained) visual observers and between these and simultaneous radar detections, both in the air and on the ground, point to an objective cause (e.g., Hynek 1972; McDonald 1972; Thayer 1971).

Here I am of course excluding the reports of so-called "contactee cultists" who seem to form a relatively distinct class and are generally readily identifiable from their tendency (a) to have little formal education, (b) to be somewhat past middle age (and most often female*), (c) to be geograph-

*Let me not be taken as casting aspersions on women as sources of reliable observation. On the contrary, I have learned from Bernard Vonnegut (a specialist in the study of atmospheric electricity--see Vonnegut & Weyer 1966) that, in the numerous interviews and letters he has obtained from scientifically untrained witnesses of luminous phenomena associated with tornadoes, women [continued on next page]

ically concentrated in the southwestern United States, (d) to have a history of professed beliefs in the mystical, the spiritual, or the occult, and most particularly (e) to be associated with a group that claims to know the nature and purpose of the alleged visitation. Insofar as possible, I should also like to exclude the reports of out-and-out hoaxes. These, also, tend to exhibit a particular though very different, pattern of diagnostic signs, stemming from the fact that exposed and/or confessed perpetrators have most often turned out (a) to be adolescents or young adults, (b) to be male, (c) to make their report in pairs, and, most characteristically, (d) to offer physical evidence such as a photograph in support of their alleged sighting.

Of course there always are ambiguous cases that are difficult to place certainly within the triangle defined by the three psychologically distinct "corners" representing the deluded contactee, the conscious pranksters, and the involuntary but responsible witness of some real but puzzling phenomenon. And discrimination between authentic cases and hoaxes are especially troublesome--particularly when we attempt to evaluate some of the more spectacular cases which involve physical evidence or alleged "landings" or "occupants." However, as has often been remarked, the existence of twilight should not deter us from distinguishing between night and day. Science generally proceeds most rapidly by focusing first on the purest and most clear-cut cases, leaving for later any "mop-up" operation with the remaining cases that are to varying degrees complicated, mixed, messy, borderline, or obscure.

To the extent that we are primarily interested in the scientific study of a puzzling, possibly objective phenomenon reported by a subject, rather than in the psychology of the subject making the report, we should eschew not only the clear cases of cultist and hoaxer, but also the various more or less obscure or ill-defined cases falling somewhere within the triangle. Indeed, to throw all such intermediate cases together, without adequate regard for the reliability or credi-

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have generally provided more useful descriptions of the phenomena than have men who, seeming to feel a greater need to provide an explanation for any observed phenomenon, let their often erroneous conception of the phenomenon influence what they remember or, at least, report about the phenomenon itself (Vonnegut, personal communication, 1967).

bility of each report--as some investigators have tended to do for the purposes of compiling over-all statistics concerning "UFO activity"--can lead to a largely uninterpretable picture. There is then no way of assessing or parceling out the "noise" contributed by the contactee, the prankster and of course the many well-meaning citizens who, under unusual circumstances, will continue to misidentify familiar phenomena. Rather, we stand to learn most about a possible objective phenomenon from an intensive study focusing just on those numerous cases represented by the remaining corner of the triangle in which converging evidence from apparently involuntary, independent, and responsible witnesses points to the occurrence of an objective and unexplained phenomenon.

The basic question with which I am concerned here comes down to this: Given a person who claims to have observed a strange and puzzling event, what psychologically oriented techniques can enable us to reconstruct the most detailed and accurate picture of what that person actually experienced? Now it is true that one of the more exotic psychological techniques, hypnotic regression, has already been attempted with interesting--if considerably less than conclusive--results in at least one UFO case of a rather sensational nature (Fuller 1967; see also Chapter 11 of this volume). However, although astonishing claims have sometimes been made for the kind of detail that can be recovered under hypnosis (e.g., by McCulloch, in von Foerster 1952, p100), the results of controlled experiments on accuracy of recall have generally been less impressive (Reiff & Scheerer 1959). More reliable, in my opinion, are some techniques based on certain psychological facts of a more mundane but more securely established character.

The Potential Advantages of Methods Based on Visual Recognition over Those Based on Verbal Description

It is, I suppose, a fact familiar to us all that we can take in and remember much more information than we can readily communicate to others. Contrast, for example, how easily we recognize the face of a friend in a crowd with how difficult it is to describe that face so that any other person could then do it for us. Quite generally, our powers of recognition exceed our powers of description (and, indeed, surpass anything that we have yet been able to accomplish by physical instrument or machine).

In an experiment in recognition memory that I first reported in 1959, I presented human subjects with over 600 highly distinctive pictures, one after the other, and then found that they could immediately distinguish between those "old" pictures and otherwise completely comparable "new" pictures with median accuracy of over 98 per cent--an appreciably higher accuracy than I obtained in parallel experiments in which the stimuli were words or sentences (Shepard 1967a). Even when the test was not given until a week later, the discriminations between "old" and "new" pictures were still 92 per cent correct. In later experiments of this type, the number of pictures to be retained has been successively increased until it has now reached 10,000 (Standing 1973). And, although the per cent correct recognition has declined as the total number of pictures presented has been so radically increased, the experiments continue to demonstrate that the capacity of human memory for the recognition of complex visual stimuli is virtually inexhaustible.

These and other studies have established a number of other facts about human memory that are relevant to our present concern. Tests using recognition generally yield substantially better performances than tests using verbal recall. Within experiments using recognition, performance is appreciably better when the stimuli are pictures than when they are words or sentences. Recognition remains well above chance for sets consisting entirely of such highly similar and difficult-to-describe stimuli as ink blots, snow crystals, or faces; and remains so even for unfamiliar forms that differ so subtly in shape as to be difficult to discriminate perceptually, let alone in memory (Cermak 1971; Cooper & Podgorny in press). And, finally, respectable recognition accuracy has been obtained when the time allowed for study was reduced to a second or even a small fraction of a second per picture. (See Shepard & Podgorny, 1978, Section IIB1, for a recent review of many of these various studies.)

The advantage of recognition over verbal description should become especially pronounced when the object or event to be remembered is unfamiliar and, so, not uniquely or succinctly "captured" by readily available terms or labels. Some psychologists have been expressly studying the ways in which people come to describe nearly nondescript objects to others (e.g., Krauss & Weinheimer 1966). Often a person will use a descriptive phrase (such, for example, as "an inverted top") without any realization of how vague or ambiguous it is. Possibly this is because the subject is picturing some particu-

lar interpretation (e.g., a particular toy played with as a child). For the listener who does not have that particular picture in mind, however, the description may prove either meaningless or, worse, completely misleading (see, e.g., Glucksberg, Krauss & Weisberg 1966). An indication of the same sort of problem is the tendency of the witnesses to say things like "it looked about the size of a football." Further circumstances make clear that they must have been referring to its apparent visual size rather than its real, physical size (which could, after all, hardly be estimated without also knowing its real, physical distance). More pertinently here, it appears, that they were really talking more about its shape than its size. Possibly, the presence, so to speak, of very vivid images in the minds of witnesses causes them to overlook the inadequacy of their verbal encoding of those images.

I submit that, even when an event occurs without warning, leaves little time for careful observation and, perhaps, occasions the emotions of fear or anxiety, typical unselected witnesses often retain a rather rich, sometimes almost photographic, record of the event--even though they generally lack the words to "externalize" their record in the form of an adequate verbal description. Thus, it is virtually certain that we can contrive a drawing or photograph that is wholly consistent with his or her completed verbal description and yet the witness will immediately reject the drawing or photograph as not corresponding to the remembered event. If so, in depending exclusively on the typical informant's inadequate, misleading and sometimes ludicrous attempts to describe what was observed, the investigator does himself, as well as the well-meaning informant, a considerable disservice. But how are we to "externalize" this internal but unverbalizable information--particularly when, as in the case of the UFO investigator, we do not have a drawing or photograph of the real event for the witness either to reject or to recognize?

Limitations of Two Extreme Types of Recognition-Based Techniques for the Reconstruction of a Witnessed Event

In another connection I have recently discussed alternative methods for the "externalization" of memory and other mental images (Shepard, 1978b). Here, we need consider only those that appear to have a direct bearing on the reconstruction of a previously witnessed, presumably external

event. These appear to range between two extreme types in which either no constraint is placed on the external reproduction or else that reproduction is constrained totally.

At the first extreme the subject attempts to create, from scratch, a drawing, painting, or three-dimensional model that produces an internal experience closely matching his or her memory image. This is, in effect, what has been done by the numerous witnesses of unidentified aerial phenomena who have tried to sketch what they have seen. Unfortunately, in the case of most witnesses this method is not much more satisfactory than verbal description. Typical witnesses may not be especially articulate, but neither are they skilled artists.

The capacity for accurate recognition, which I claim is an innate part of every normal human, requires for its application a rather complete and accurate external stimulus. But for subjects themselves to generate such an external stimulus from scratch requires, in addition to the internal memory image (however vivid it may be), the possession of powerful production schemata developed in only a very small fraction of the population. The discrepancy between typical subjects' powers of recognition and powers of production is evident in the familiar fact that the subjects themselves will generally admit that the finished drawing produced by their own best effort falls far short of adequately capturing the object or scene they so well remember. (Readers might consider their own ability to "capture" with pencil and paper, the unique identity and expression of a remembered face.)

Of course, just as it can by chance happen that a witness of an anomalous event is carrying a camera, it can happen that he or she is a graphic artist. Indeed in a very few cases, UFO witnesses have happened to possess sufficient artistic skills to produce a shaded drawing with an almost photographic quality of depth and chiaroscuro (e.g., see the drawing by a high-school art teacher of the disk-shaped phenomenon he reportedly observed outside Valpariso, Indiana, in November 1957, which is reproduced in Edwards 1966). In the case of such artists, their finely-tuned recognition response presumably comes increasingly into play as their productive efforts achieve closer and closer approximations, on paper, to their internal target image. But, except in the rare event that the witness possesses these special productive talents, this possibility is of little help to the field investigator. Most witnesses are not able to produce a likeness of

what they saw that will even begin to engage their own latent capability for a positive recognition response.

Opposite to the extreme of giving subjects such complete (and demanding) freedom, is the extreme of giving them no freedom at all. We then simply present them with a finished product (e.g., a drawing or photograph) and ask them to judge whether it does or does not match what they remember. This is the basic paradigm used in the laboratory tests of recognition memory that have demonstrated the remarkable capacity and precision of recognition memory. Unfortunately, as I have noted, this paradigm is not directly applicable when, as in the case of the field investigation of unidentified aerial phenomena, we wish to reconstruct the appearance of something for which we do not already have a drawing or photograph.

We seem, then, to need a technique that falls somewhere between these two extremes; one that provides witnesses with something more constraining than a blank sheet of paper, which fails completely to engage their recognition system, and yet something less constraining than any one completely concrete and detailed photograph, which we generally are not in a position to provide anyway.

Intermediate Methods of Constrained Reconstruction Using Systematically Organized Recognition Arrays

Police investigators attempting to identify the perpetrators of violent crimes of kidnapping, rape, and murder face essentially the same problems that we have been considering here. The surviving victims or witnesses are often unable to give a sufficiently informative verbal description; they generally lack the talents of a portrait artist; and there often are no photographs of suspects available for comparison and recognition. Strikingly successful reconstructions have nevertheless been achieved by means of a cooperative collaboration between the witness, who has the memory image, and a police artist, who has the productive skills to generate --on the basis of feedback provided by the witness--a succession of sketches that more and more fully elicit the desired recognition response from the witness.

These specialized artists take advantage of the fact that, although they don't know exactly what face they are trying to reconstruct, they at least know that it is a face. This

enables them to break the problem down into more manageable subproblems. They can try, separately, to obtain partial recognition responses to visually isolable aspects such as the shape of the eyebrows, of the eyes, of the nose, of the mouth, and of the facial outline as a whole. Furthermore they can do each of these separately by presenting the witness with graded arrays of examples of the part in question that vary parametrically in size and shape. The witness can then arrange the chosen parts within the chosen outline to maximize the experience of recognition. The resulting arrangement will often provide a sufficiently concrete stimulus to enable the witness to specify still more subtle details and refinements. Sometimes this process converges to a result that proves to be remarkably accurate and, in more than one instance, has actually led to the apprehension and conviction of the criminal (Schumach 1958).

It is true that some results have emphasized the fallibility of eyewitnesses in identifying or reconstructing faces, but these have been either in the much more exacting context of certain criminal trials in which discriminations were required between remarkably similar appearing faces (Buckhout 1974), or else in experiments in which sole reliance was placed on a "Photo-fit Kit" that we must assume does not adequately facilitate the subject's search through the sets of possible features since the reconstructions were rated as unsatisfactory even by human judges themselves (Ellis, Shepherd & Davis 1975), and since other work has demonstrated much higher accuracies in both recognition (Goldstein & Chance 1971) and reconstruction (Harmon 1971).

Of course techniques of this kind become more difficult to implement when we know even less about the general nature and dimensions of variation of the object we are trying to reconstruct. Still, on the basis of the uncertain and fragmentary information that is already available from descriptions, from drawings, and, possibly, from alleged photographs, we should be able to develop similar sorts of graded stimulus materials to help witnesses reconstruct the appearance of briefly-observed phenomena of the sorts referred to as unidentified flying objects (and, incidentally, of the quite different sort referred to as the Loch Ness monster, as Bigfoot, or even those referred to as "flying saucer occupants").

For the purpose of investigating UFO sightings, in particular, we need to develop a standardized set of materials

containing suitably representative and graded series of shapes that will enable each witness to provide more precise and independent information about what he saw. In addition to arrays of overall shapes, separate arrays might also be devised for distinguishable subparts or aspects of the phenomena such as surface color and texture, shapes and colors of lights or light beams, of smoke or smoke vapor trails, of surface markings, or of humps or other projections. By the use of such materials, we should be able to secure much more concrete and specific information than is now typically recorded in the field by verbal interrogation--supplemented, if at all, only by crude sketches that the witnesses themselves regard as quite unsatisfactory.

More detailed information of this kind is needed not merely for its own sake. It is needed, first and foremost, because the establishment of the very validity of the information in question hinges upon the demonstration of the kind of point-for-point correspondence between reports that becomes possible only when those reports are sufficiently detailed. If two unrelated witnesses both claim to have seen a disk-shaped object at about the same time and place, this is not sufficiently compelling. (Evidently! For it has already happened many times.) But, if artists working with the two witnesses, independently, construct pictures of what appears to be the very same object or, alternatively, if the two witnesses independently point to the very same drawing or photograph in an array of 50 or more different pictures of such objects, then the coincidence becomes more interesting. (And, of course, if the pictures reconstructed or singled out in this way just once turned out to coincide also with an actual photograph taken at the time, we should at last have opened the door for the more precise measurements of physical science--including the sophisticated and powerful photogrammetric methods already developed for the analysis and interpretation of lunar and planetary photographs.)

The effectiveness of the proposed procedure would depend very heavily on the amount of thought, care, skill and, above all, pretesting that went into the preparation of the materials. The arrays of alternative shapes should include all types of shapes that have been clearly described, sketched, or (allegedly) photographed by some previous witness of at least reasonable credibility. An early start at systematizing the kinds of shapes that have been reported was made by NICAP (Hall 1964, p144). However, more extensive and refined work would be necessary in order to cover the great

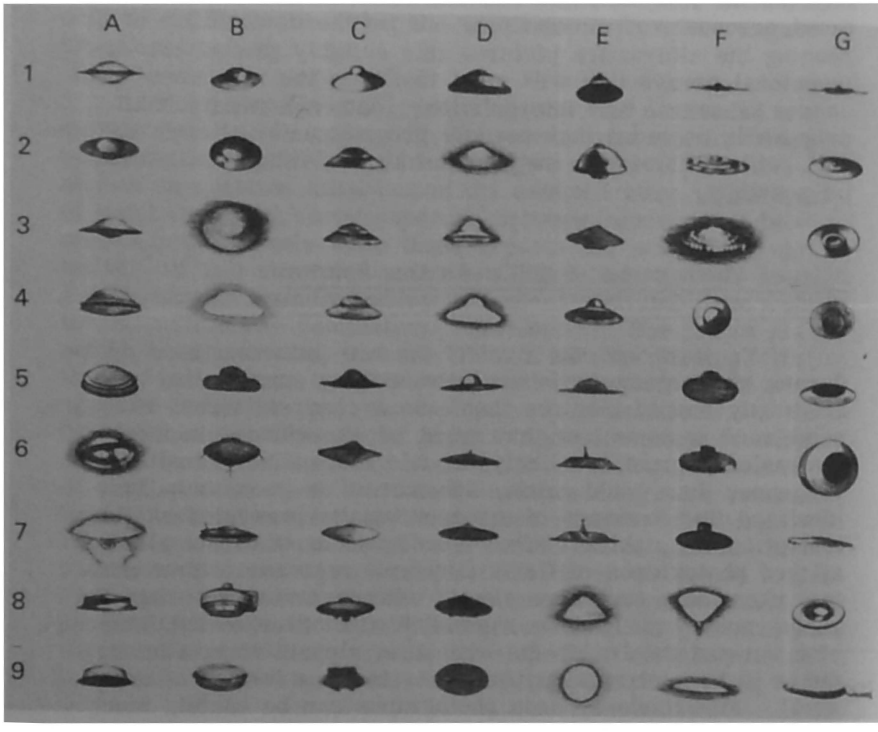
variety of reported shapes in a sufficiently concrete and realistic manner. More recently, Haines (1976) has initiated a much more ambitious attempt at systematization, which has the special virtue of being extensively based on a large collection of drawings made by actual eyewitnesses.

The approach to the construction of recognition arrays that I shall now outline differs from the just-mentioned efforts in its particular emphasis on the desirability of ensuring that each constituent picture approximates as closely as feasible the kind of photo-realism that will engage finely tuned processes of recognition, and on the desirability of arranging the alternative pictures into suitably graded two-dimensional arrays that will most facilitate the witnesses' processes of search and interpolation. Although what I shall propose is no more than crudely programmatic, I hope it will suffice at least to suggest the kind of thing that should be possible.

Alleged Photographs of UFOs As One Source of Concrete Materials for a Recognition Array

To start with the first of the two just-mentioned desiderata, the arguments I have been making suggest that realistically shaded pictures that have a concrete visual resemblance to something that might be experienced in three-dimensional space are likely to yield more discriminating responses than would crude, schematic, or geometrically idealized line drawings of the sort usually presented as illustrations of sighted UFOs. Of course most (if not all) alleged photographs of UFOs may well represent either normal phenomena that were simply misinterpreted (as when the photographs vaguely show a small blob or blur of light) or else out-and-out frauds (as when they clearly show what appears to be a strange artificial device or structure of some sort). Nevertheless, such photographs can be useful, much as persons known to be innocent are useful in a police "line up," for purposes of forcing finer discrimination and testing the reliability of a witness.

Figure 1 presents such an array or two-dimensional "line up" consisting of 63 drawings in which I tried to reproduce as faithfully as I could, in standardized size, orientation, and black-and-white format, the appearance presented in each of 63 representative photographs of alleged UFOs selected from a set of well over 150 that I had collected for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this purpose by 1967. (Many more such photographs have of course appeared in the ensuing decade.) The sample of shapes in this one array is much too limited to alone serve the purposes of the field investigator. (Night views of luminous phenomena are especially under-represented in these drawings.) Nevertheless I have attempted to arrange what pictures there are in this limited set into some semblance of order on the basis, primarily, of general similarity in appearance.

In my earlier report (Shepard 1968) I commented on a number of the individual photographs upon which I based these drawings; so I shall confine myself, here, to a couple of observations only. Several of these photographs were eventually admitted to be of fraudulent origin (e.g., those designated as A4, A5, B6, and C2), and suspicious circumstances surround many of the others (including A9, B1, B8, B9, C1, C3, E4, and G8). There are, however, some suggestive similarities between some of the photographs allegedly taken independently at widely different times and places.

A particularly well known example consists of E6, taken by a locally respected couple on their farm outside of McMinnville in rural Oregon about 7:30 p.m. on May 11, 1950 (Condon & Gillmor 1969, plates 23-26), and E7, said to have been taken by a French military pilot near Rouen, France, on March 5, 1954 (Lore & Deneault 1968, plate 1). Interestingly, on the basis of an unusually extensive analysis of the McMinnville case undertaken for the generally skeptical Air-Force-sponsored Colorado Project, the investigator, astronomer W. K. Hartmann, concluded that "This is one of the few UFO reports in which all factors investigated, geometric, psychological, and physical, appear to be consistent with the assertion that an extraordinary flying object, silvery, metallic, disk-shaped, tens of meters in diameter, and evidently artificial, flew within sight of two witnesses" (Condon & Gillmor 1969, p407). And the R. A. F. Flying Review (July 1957) which apparently first published the Rouen picture called it "one of the few [UFO photographs] which seem authentic." Curiously, NICAP has within its files the report of a 1904 Michigan sighting that, though it could not reasonably have been known to the McMinnville or Rouen witnesses, describes

Opposite page: Fig. 1. Drawings by the author based on 63 alleged photographs of UFOs, illustrating some of the many variations in shape and appearance.

what seems to be an aerial object of a very similar shape--likened in the report to the famous Confederate warship the Merrimac, with its unconventionally downward and outward sloping ironclad sides and its central smokestack (Lore & Deneault 1969, p93).

Of course the occurrence of even a very close similarity does not in itself establish authenticity if one picture was publicly available before the other was first reported. Thus the evidential value of the similarity of E7 to the earlier E6 is greatly weakened by the fact that the Rouen photograph did not emerge until after the McMinnville photograph appeared in LIFE magazine (June 26, 1950). A case in point is provided by the pair C2 and C3, which look virtually identical despite the fact that the object in C2 appeared over a mountain near Riverside, California, in the photograph taken by a 21-year-old man and two friends in 1951, whereas the object in C3 appeared over a flock of grazing sheep in the photograph submitted by an Australian rancher in 1954. But the fact that the object appearing in the first of these photographs (C2) was still later admitted to be none other than a 1937 Ford hubcap hardly redounds to the credibility of the second photograph of the "UFO" (C3)!

The array is intended only to represent the variety of shapes that have appeared, it does not give an adequate impression of the relative frequencies of those different shapes or appearances. In fact, the images that are most common in my total sample show either a small point, formless blob, or fuzzy ellipse of light in a night sky, or else a dark, more or less distinct ellipse (like that shown in D9) against a lighter sky. With very few exceptions, such as the rocket- or "cigar"-shaped object with "exhaust trail" (G9), which allegedly was photographed over Peru in 1952, the more well-defined objects appear to be some variant of the "saucer" or "domed disk."

Nevertheless, the single most striking thing about these pictures, far from being a general uniformity in appearance, is their largely irreconcilable diversity. Whether or not this diversity is interpreted as detracting from their value as evidence, it surely cannot be taken as contributing to that value. It does, however, serve our immediate, rather different purpose of providing an initial sample of suitably concrete pictures to use as a basis for constructing a recognition array. We turn, next, to a consideration of the second of the two previously mentioned desiderata; namely, that

the pictures be optimally ordered and graded within the array.

Alternative Approaches to the Systematic Construction of Recognition Arrays

In a three-dimensional world, constraints of geometrical optics dictate that an array of the sort we seek cannot conveniently be more than two-dimensional. Yet the dimensions along which shapes like those in Fig. 1 vary are clearly more than two. The unavoidable (topological) consequence is that we cannot embed the whole range of such a set of shapes into a single two-dimensional plane without destroying to some extent the properties that will most facilitate human comprehension, search, and interpolation: namely, the related properties, one, that shapes are always represented as close together or far apart according to whether they are similar or very different and, two, that changes of a particular, recognizable kind proceed in increasing degree as we move across the array in any one fixed direction. I now consider four ways of dealing with this difficulty--the last three of which have become more feasible as a result of certain developments related to computer graphics.

First, and most obviously, we can reconcile ourselves to the necessity of using more than a single two-dimensional array to cover the range of possibilities. Perhaps these should be structured hierarchically so that the selection by the witness of a general class of objects from a preliminary master chart will indicate which of several dimensionally restricted but more detailed parametric arrays should be turned to next.

Second, if within any one two-dimensional array we nevertheless find it desirable to represent shapes that vary somewhat along more than just two dimensions, we can at least minimize the violence that we do to the perceived similarity relations among the shapes when we force them into a two-dimensional space. My associates and I have developed several related computer-based methods for embedding higher-dimensional sets into lower-dimensional spaces in such a way as to preserve, optimally, local structure--such as the perceived similarities among similar stimuli (Kruskal 1964; Shepard 1962, 1974, p390; Shepard & Carroll 1966). In addition these same methods could yield a quantitative metric of similarity that would enable us to specify just how similar an

object identified by one witness is to the object identified by another, and provide information about the underlying dimensions of the perceived shapes needed to realize the full potential of the approaches considered next. (See Shepard 1968 and Behrman & Brown 1968 for indications of further possibilities along these lines.)

Third, we can use computer-based methods for the analysis and interpolated synthesis of shapes to construct these dimensionally restricted arrays in an optimally specifiable, efficient, and orderly way. I illustrate below how methods of computer graphics can enable us to generate arrays of pictures that are appropriately graded with respect to inherent three-dimensional shape (next section), and that are appropriately graded with respect to two-dimensional appearances resulting from different orientations of the same object in three-dimensional space (the section after that).

The fourth and most exotic computer-based approach to the problem of dimensional restriction inherent in two-dimensional displays is to eliminate that restriction by replacing two-dimensional hard-copy charts with on-line graphics systems. I will not consider this fourth approach in any detail here since it will not be generally practicable for our purpose until the time, not soon anticipated, when it becomes feasible either to transport the witness to the computer-graphics terminal or, better, the computer-graphics terminal to the witness. I shall only note that, when this does become feasible, by a suitable multidimensional control lever the witness could produce continuous variations of a displayed shape along any number of dimensions--including those of perspective changes corresponding to motions of a rigid object in three-dimensional space (Baumgart 1974; Newman & Sproull 1973).

Computer Generation of Parametric Arrays of Objects Varying in Inherent Shape

In connection with studies of pattern perception in our laboratory, my students and I have found methods based on polar-coordinate analogs of Fourier analysis and synthesis to provide an effective way of synthesizing graded arrays of naturalistic shapes (Gauthier 1977; Shepard & Cermak 1973). To illustrate how this approach might be applied to the present problem, I chose four commonly reported UFO shapes defined by the four possible combinations of two types of top--

broadly rounded (as in D1 of Fig. 1) or sharply humped (as in D4)--and two types of bottom--flat (as in D1) or convex (as in C7). Richard Gauthier and I then used a computer program that he had devised for the Fourier decomposition of such closed figures to estimate the amplitudes of the required frequency components of the chosen shapes. Conceiving of these four shapes as corners in a desired rectangular array, we then synthesized the 25 shapes corresponding to points in an equally-spaced 5-by-5 rectangular array by linear interpolation of the amplitudes between those for the corner shapes. The result is shown in Fig. 2. The next paragraph, which can be skipped by the mathematically disinclined, gives our procedure in more explicit detail.

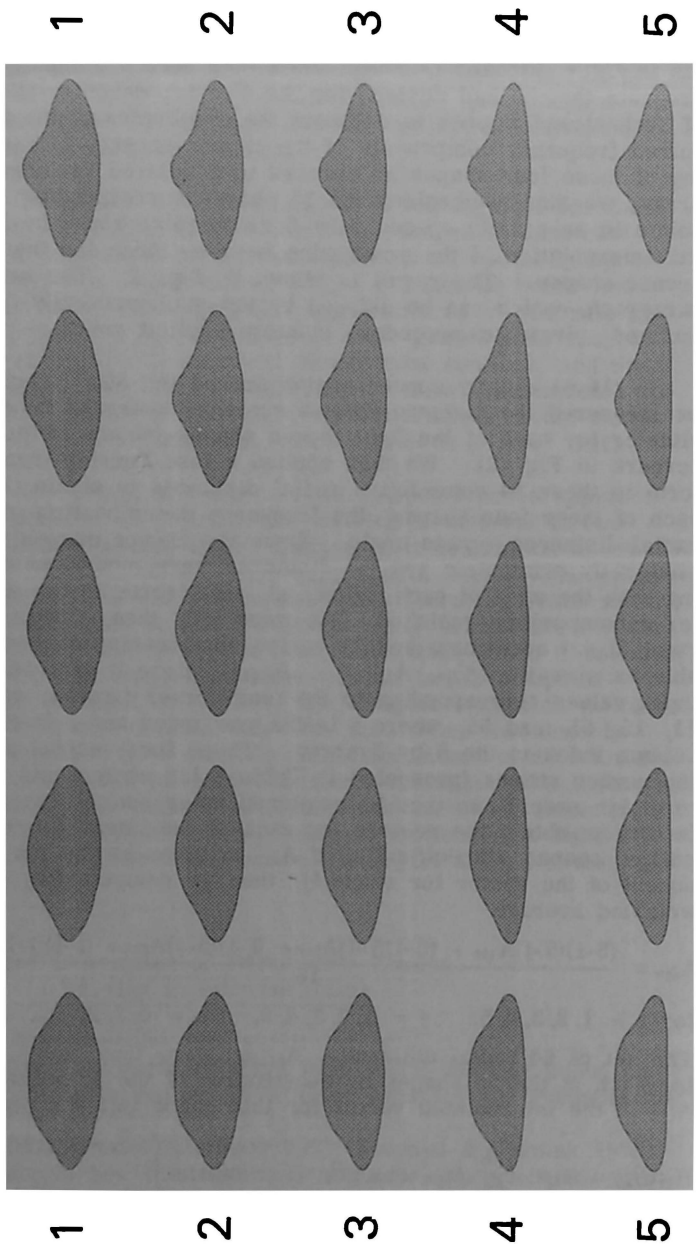
At 64 equally spaced angles around the 360° circle, we measured the distance from a common center to the perimeter for each of the four chosen shapes (shown at the corners in Fig. 2). We then applied a fast Fourier transform to these 64 consecutive radial distances to obtain, for each of these four shapes, the frequency decomposition of the radial distances versus angle. Since the chosen shapes were bilaterally symmetric and the distances were measured starting with the apex of each figure, all sine terms in the Fourier decomposition vanished. We were left, then, with a constant (d. c.) component and 31 cosine components, expressable as a vector (A_{ij0}, A_{ij1}, ... A_{ij31}). Here ij take on the index values corresponding to the four corner figures, viz., 11, 15, 51, and 55, where i is the row index and j is the column index in the 5-by-5 array. These four vectors for the corner shapes (presented in Table 1 for components up to eighth order) can then be combined using suitable weighting factors to obtain the vectors for each of the linearly interpolated shapes. Specifically, if A_{ijn} is taken as the nth component of the vector for shape ij, then we compute the weighted average

$$A_{ijn} = \frac{(5-i)(5-j)A_{11n} + (5-i)(j-1)A_{15n} + (i-1)(5-j)A_{51n} + (i-1)(j-1)A_{55n}}{16}$$

for i = 1, 2, 3, 4, 5, j = 1, 2, 3, 4, 5, n = 0, 1, 2, ... 31.

The set of 64 radial distances, $R_{ij}(\theta_k)$ were then computed for each of the 25 shapes by substitution of the 32 values of A_{ijn} in the interpolated vector for that shape into the equation

$$R_{ij}(\theta_k) = A_{ij0} + \sum_{n=1}^{31} A_{ijn} \cos n\theta_k, \qquad \text{where } \begin{cases} \theta_k = k \times 360°/64 \\ k = 0, 1, 2, \ldots 63. \end{cases}$$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This calculation was carried out at one-degree steps of θ around the 360° circle and the resulting closed curves were drawn, for each shape, by means of an Omnigraphic plotter under the control of a PDP-8 computer.

Table 1. Coefficients for the Eight Lowest-Frequency Cosine Components of the Four "Corner" Shapes

Order of component	The four shapes (as depicted in Fig. 2) A1	A5	E1	E5
0	22.105	17.602	21.186	17.036
1	-2.268	4.051	-2.290	3.820
2	-10.725	-11.617	-7.833	-9.327
3	1.208	-1.177	4.428	2.673
4	3.855	5.522	5.140	6.941
5	-0.843	-0.262	-1.509	-1.551
6	-1.700	-2.962	-2.292	-3.356
7	0.691	0.843	1.311	1.957
8	0.842	1.618	1.563	1.868

The rectangular array of the 25 resulting shapes, displayed in Fig. 2, seems to achieve the desired kind of systematically graded variation. Of course much work remains to be done, perhaps using some of the techniques mentioned under the second approach above, in order to determine just what dimensions of variation should be combined in individual arrays so that the resulting set of arrays will most effectively cover the total range of shapes reported and will most effectively enable the average witness to narrow down to a good approximation of the shape he or she remembers seeing.

Computer Generation of Parametric Arrays of Objects Varying in Orientation

The restriction to two dimensions applies to each of the pictures itself as well as to the arrangement of the whole set of those pictures. This restriction thus raises the further issue of how best to represent the variations in appear-

Opposite page: Fig. 2. A computer-generated array of 25 shapes varying in the two dimensions of breadth of hump on upper surface (columns A-E) and convexity of lower surface (rows 1-5).

ance to an observer that a single three-dimensional shape can present as it changes its orientation in space. The arrays displayed in Figs. 1 and 2 do not confront this issue since (with the exception of the views G1-3 in Fig. 1) the objects are all presented in one orientation only and, indeed, in Fig. 2 the views are all taken to be edge-on silhouettes.

A general, nonsymmetric object in three-dimensional space has three degrees of orientational freedom (corresponding, in conventional aircraft, to angles of pitch, roll, and yaw). Unfortunately, therefore, an array portraying the different appearances of such an object from all possible perspectives would require a three-dimensional array. Worse, this three-dimensional array would not even be Euclidean (as was the two-dimensional rectangular array in Fig. 2). Since the three dimensions of rotational variation are all circular, the space of possible orientations is a closed, unbound, curved three-dimensional manifold that is topologically equivalent to projective space or, equivalently, to the interior of a sphere with diametrically opposite points on the surface of the sphere treated as the same point (see Shepard, in press, a). However, for present purposes we may be able to reduce the dimensionality of the set of portrayed orientations without great loss. Since one degree of freedom can be taken to correspond to rotations of the object about the line of sight, we can simply let the witness rotate the two-dimensional projective picture itself and thus reduce the dimensionality to be preserved in the array to a more acceptable two. The resulting two-dimensional space is still not Euclidean; however, it now corresponds to the points on the surface of a sphere.

The shapes described for sighted UFOs, like the shapes portrayed in the sample of photographs (Fig. 1), very often possess an axis of symmetry. Since in this case views affected by a rotation about that axis do not differ, we can eliminate one more degree of freedom. The set of distinguishably different views now corresponds, except for rotations of the picture itself, to points on a one-dimensional circle rather than on a two-dimensional sphere. Moreover, since diametrically opposite points represent identical views (except for a 180° rotation of the picture), we need only deal with one half of the circle. The points on this semicircle then correspond to views of the axially symmetric object (e.g., disk-shaped UFO) viewed from the top, edge, and bottom, with all the intermediate views in between.

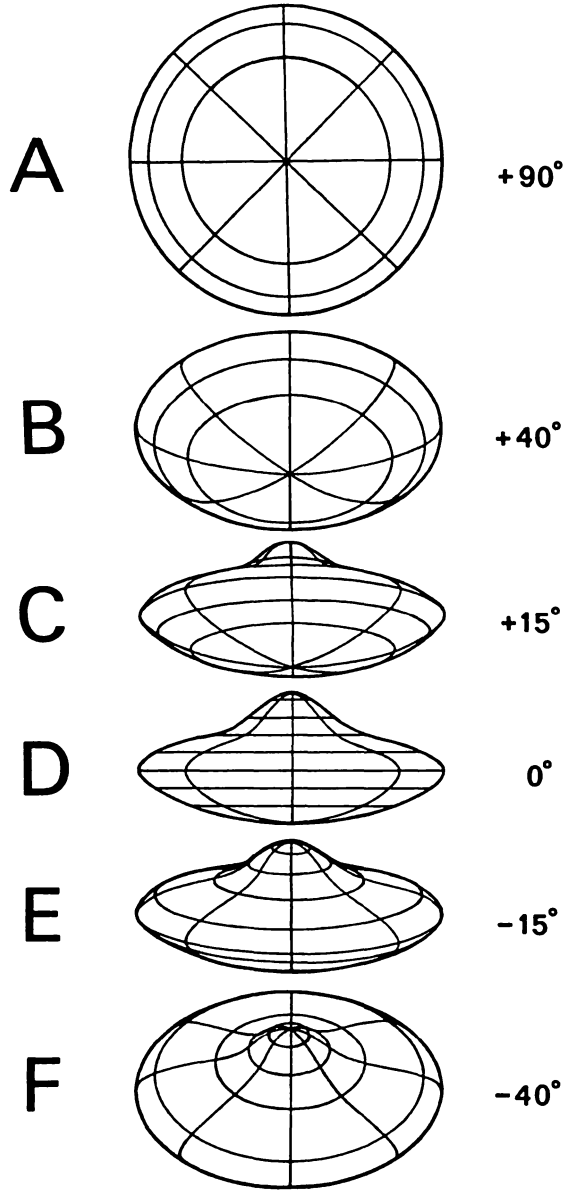
To illustrate, Fig. 3 shows six of these views for the

computer-generated shape E1 of Fig. 2. Such series of perspective views are readily generated via existing systems for computer graphics and, with sufficient funds, can now be automatically produced with a much greater degree of photographic realism, using shading, shadows, and even color (Baumgart 1974; Newman & Sproull 1973). Additionally, if desired, the parameter of orientation can be crossed with any other parameter, such as either of the two shape parameters varied in Fig. 2, to generate a two-dimensional array varying in both intrinsic shape and spatial orientation.

The Assessment of the Representativeness of a Set of Pictures for a Recognition Array

However extensive a proposed collection of shapes to be included in a set of a recognition test materials may be, there is always the possibility that some significant types are still missing. Before being confronted with serious deficiencies of this kind in the field, we can use certain laboratory techniques to obtain preliminary indications of the degree of representativeness of a proposed set of materials. One such technique is simply to have people describe these shapes and then to look for any pronounced departures of the relative frequencies of the various descriptive terms used from the corresponding relative frequencies in reports issuing from actual sightings of UFOs. In 1967 a research assistant, Shelly Meltzer, and I carried out an exploratory attempt at this sort of thing that may help to illustrate this possibility.

From our total sample of over 150 photographs, we selected 75 that seemed reasonably representative. These included most of the 63 already portrayed in Fig. 1, but those that were known or strongly suspected to be fraudulent were eliminated and a number of others of less sharply defined shape were added, since many reports indicate that the shape was not clearly visible. Each of 19 subjects, mostly students at Harvard University, then looked through one of three subsets of 25 of these photographs and, for each, attempted to describe the pictured object in their own words. (Immediately following that, each subject then looked through another subset of 25 and, this time, indicated the appropriateness for each photograph of each term in a fixed set that we had listed in advance on a standardized rating sheet. However this part of the experiment will not be considered in any detail here.) Of most immediate interest are the descriptive labels spontaneously produced in the 19 times 25, or 475, subject-photograph encounters.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C
+15°
D
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E
−15°
F
−40°

These could now be compared with the descriptive labels appearing in a sample of 206 different representative reports of actual UFO sightings that Meltzer had already extracted (for a different purpose) from a number of sources (most of which are listed in Shepard 1968). Table 2 lists those descriptive terms that pertain to visual appearance but, for purposes of comparison with the mostly black-and-white photographs, excludes the many references to (chromatic) color. With one exception (number 33), only terms that appeared at least twice in the sample of 206 actual reports are included, and these are arranged in order of decreasing frequency in that sample.

The two columns of numbers, then, present the resulting frequencies of occurrence (a) in the 206 actual UFO reports and (b) in the 475 opportunities for these same descriptive terms to arise in the experiment with the photographs. Direct numerical comparisons are somewhat hazardous because of the different circumstances in which the two sets of descriptive terms arose. In terms merely of opportunities, the numbers in the second column should be about twice as large as those in the first. However, the totals for the two columns are nearly equal and, so, the real encounters evidently were relatively more productive of descriptive terms on the average.* Numerically small departures or departures in which the second number is somewhere between half to twice the size of the first are probably not very significant therefore.

The remaining positive and negative discrepancies of appreciable size are indicated by the plus and minus signs in the right-most column. Some of these are probably explainable in terms of the two-dimensional, achromatic, and stationary character of the photographs (e.g., numbers 10 and 13), or in terms of differences in vocabulary to be expected between the unselected witnesses and the college-educated subjects of the experiment (e.g., numbers 9 and 15). Other discrepancies, however, suggest either that some shapes,

*A somewhat similar finding is presented in chapter 12 (on pages 358-395), where drawings of UFOs by alleged eyewitnesses differ in several subtle ways from UFO drawings by non-eyewitnesses.

Opposite page: Fig. 3. Six perspective views of the object E1 (from Fig. 2) varying in angular departure from the edge-on view represented in Fig. 2.

Table 2. Comparison of Frequencies of Descriptive Terms Produced (a) by Actual Witnesses of UFOs and (b) by Experimental Subjects Describing Alleged Photographs of UFOs

Label†		(a)†	(b)†	(c)†
1	Disk shaped	27	42	
2	Circular	24	24	
3	Round	22	25	
4	Metallic	19	41	
5	Domed top	15	21	
6	Starlike (point of light)	14	6	-
7	Cigar shaped	13	1	--
8	Spherical	12	9	
9	Ball shaped	11	0	-
10	Fiery appearance	11	0	-
11	Trail of vapor/smoke	10	13	
12	Portholes/windows	10	0	-
13	Pattern of lights	9	0	-
14	White filaments emitted	9	0	-
15	Oval	6	19	+
16	Flat	6	8	
17	Elliptical	5	9	
18	Dumbbell shaped	5	0	
19	Football shaped	4	1	
20	White	4	0	
21	Saucer shaped	3	12	+
22	Egg shaped	3	5	
23	Diamond shaped	3	0	
24	Silvery	3	0	
25	Saturn shaped	2	7	
26	Top shaped	2	5	
27	Conical	2	3	
28	Washtub shaped	2	0	
29	Two washbowls rim-to-rim	2	0	
30	Two plates rim-to-rim	2	0	
31	Long Tail	2	0	
32	Emitting flame	2	0	
33	Hat shaped	1	35	++
	Totals	265	251	

†The label describes visual appearance (excluding chromatic colors); (a) is number of occurrences in 206 actual UFO cases; (b) is number of occurrences in 475 descriptions of 75 photographs; (c) is appreciable discrepancies.

such as the so-called "cigar" (number 7), were not adequately represented in the sample of photographs, or that some shapes, such as those most frequently said to resemble a "hat" (number 33), are especially likely to have been of fraudulent origin. (Among the objects included in Fig. 1 that were often said to be hat-like is C3, which we already noted is almost certainly a 1937 Ford hubcap.)

Recommendations and Conclusions

Our sample of only 206 actual UFO cases is really too small and haphazard for the purpose of ensuring that all types of reported shapes are adequately represented in any proposed recognition array. Many descriptive terms that have repeatedly been used (such as "doughnut," "ring," "mushroom," "flattened ball," "double-convex lense," "bullet," "blimp," and "submarine") didn't happen to appear more than once in our particular sample. Ideally, for this work, one would like access to a centralized library of all reasonably documented cases--suitably coded for retrieval via computer. Indeed, at present the scientific study of UFOs is greatly hampered by the circumstance that the thousands of reported sightings have not been adequately coded or systematized in any uniform way and have been scattered among such diverse and not always mutually cooperative organizations as the U. S. Air Force, NICAP, APRO, MUFON, and the U. S. Air Force sponsored University of Colorado Project--not to mention a number of extensive files assembled by individual investigators (such as David Saunder's catalog of some 50,000 cases and Jacques Vallee's catalog of some 2000 close encounters) and, probably, by military or intelligence organizations in various other countries as well.

Even on the basis of presently available descriptions, sketches and photographs, however, we could undoubtedly develop a standardized set of recognition arrays of the sort proposed here that, with a minimum amount of instruction, could profitably be used by the great number of field investigators already working with the principal organizations devoted to the scientific study of UFOs.

The field investigator's interview with a witness might best be divided into three distinct phases: first, the recording of the witness describing what was seen as completely as possible, in his or her own words, and without any leading questions or other cues (whether verbal or pictorial) that

might bias the witness in one direction or another; second, the recording of the witness's responses to the standardized recognition arrays; and third, if the case seems to warrant it, the full reconstruction of a new picture with the aid of a trained artist working in cooperation with the witness. (Such a new picture, if sufficiently novel or well-defined, might then be incorporated in future revisions of the materials used for the second phase of the interview, though such a process of feedback and revision would of course require more centralization and cooperation than seems currently to exist among the various investigative organizations.) Regrettably, in order to minimize the likelihood of nonindependent responses by different witnesses or, worse, of deliberate collusion between pranksters, it would be essential to avoid public exposure of the final set of recognition materials.

The establishment of a pre-tested and standardized procedure for reconstructing information by the sort of psychologically-oriented techniques advocated here would be incomparably cheaper than the construction of a far-flung network of automatic physical recording instruments. For, instead of having simultaneously to cover all possible sites in advance, we could simply move in to recover the desired information after an incident is first reported. The use of even relatively preliminary and incomplete recognition arrays, if generally adopted, might lead to a marked and perhaps even decisive increment in the quality, precision, and verifiability of the reports of UFOs that continue to flow into the principal investigative networks that already exist across the country and around the world.

Why not give it a try?

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INVESTIGATION OF THE ALLEGED UFO EXPERIENCE OF CARL HIGDON*

R. Leo Sprinkle

> It is easier to perceive error than to perceive truth; for the former lies on the surface and is easily seen, while the latter lies in the depths, where few are willing to search. --Goethe.

Introduction

The UFO phenomenon is a complex issue which may be related to the total development of humankind. Certainly the problem is world-wide, because thousands of reports are submitted yearly from various persons in all countries of the earth. The controversy is not centered on the question of the reality of UFO reports; the controversy is centered on the question of the meaning of these reports.

Jacobs (1975) has provided an excellent historical analysis of the UFO controversy in the United States; Hynek (1972) has described an astronomer's approach to the scientific study of the UFO experience; Salisbury (1974) has offered a biologist's investigation of UFO reports; and Hynek and Vallee (1975) have presented a progress report on UFO investigation. Klass (1974) has moved from the "plasma" hypothesis to the "hoax" hypothesis to explain UFO reports. If the reader wishes to read the book by Condon and Gillmor (1969), he or she is encouraged to turn to page 961 and check the number of "unexplained" cases; also, see the critique by Willcox (1976).

*Appreciation is expressed to the many persons who assisted in the investigation, including Rick Kenyon who provided his photographs and sketch. Special appreciation is expressed to Mr. and Mrs. Everett Carl Higdon, Jr., for their cooperation and courage.

Although many UFO investigations allude to problems of individual and group behaviors, few behavioral scientists have investigated reports of UFO phenomena. There are contributions by sociologists, e.g., Hall (1968), and Warren (1970); psychiatrists, e.g., Jung (1959), and Grinspoon and Persky (1972); medical parapsychologists, e.g., Eisenbud (1975), Puharich (1974), and Schwarz (1968, 1969, 1971a, 1971b); and psychologists, e.g., Cantril (1940), Festinger, Riecken and Schachter (1956), Shepard (1968), and Price-Williams (1972).

In my opinion, Saunders (1968; Saunders & Van Arsdale 1968; Saunders & Harkins 1968) has provided a solid base for the psychological aspects of UFO investigation; Saunders has developed the UFOCAT Codebook, a computerized system for coding and analyzing UFO reports.

One Writer's Approach

I have considered some of the questions about the interrelationships of UFO observers and investigators, the characteristics of persons interested in UFO reports; the problems and predicaments of UFO research, and hypnotic and psychic implications in the investigation of UFO reports (see the References at the end of this chapter). Since 1951, my own bias has changed from that of a "scoffer" to a "skeptic" to a "believer" in the existence of UFO phenomena. As a consequence of my own UFO sightings, and my discussions with other UFO observers and investigators, I accept (tentatively) the following general hypothesis: The Earth is the object of a survey by spacecraft which are piloted by, or controlled by, intelligent beings from some other civilization(s). The origins, powers, and purposes of these beings apparently are not known, in terms of our contemporary scientific knowledge; however, further investigation should be continued in order to understand the significance of UFO phenomena.

Ten specific hypotheses are appealing:

1 The experience hypothesis: a UFO report is a description of a real experience of the UFO witness (Hynek 1972).

2 The truth hypothesis: the UFO witness is telling the truth (McCampbell 1973).

3 The reflective hypothesis: the UFO experience

reflects the attitudes and characteristics of the UFO witness (Keel 1969).

4 The display hypothesis: the UFO sighting is a display to the UFO witness (Salisbury 1974).

5 The programming hypothesis: the UFO phenomenon is "programmed" (i.e., deliberately meant) to be visible or to be experienced (Michel 1974).

6 The inconclusive message hypothesis: each UFO experience contains an element of doubt or an inconclusive message (Moyer 1975).

7 The aura hypothesis: the aura, or bioenergetic field of the UFO witness is somewhat different from the aura of other persons (Edwards 1970).

8 The psychic forces hypothesis: UFO experiences are manifestations of psychic forces from the collective unconsciousness of humankind (Clark & Coleman 1975).

9 The control system hypothesis: UFO activity is a control system for conditioning human beliefs (Vallee 1975).

10 The Cosmic Consciousness Conditioning (CCC) hypothesis: a UFO experience increases the level of cosmic consciousness, or universal awareness, in the UFO witness (Sprinkle 1976c).

McCampbell (1973, pp144-145) has discussed the implications of the hypothesis that the witnesses tell the truth: "Until another hypothesis has been shown to be more productive, UFO reports should be considered as sincere attempts by people to describe personal experiences, no matter how bizarre they may seem. Psychological studies of the future can then be relieved of explaining any diabolical motives of the witnesses and concentrate upon analyzing the irrational skepticism that infects society." Behavioral scientists are in a good position to accept the challenge of testing the hypothesis that witnesses tell the truth.

If the investigator concludes (tentatively) that the UFO witness is "telling the truth," then the question arises: Is the UFO phenomenon a "display"? Several writers have discussed the implications of the hypothesis that a UFO sighting is a "display" to the UFO observer. Keel (1969, pp9-10) offered the "reflective" hypothesis: UFO phenomena are tailored to the individual beliefs and attitudes of the witness.

Salisbury (1974, p108) concluded: "I, and some of the witnesses as well, couldn't help but be impressed with the idea that the UFOs wanted to be seen.... It is as though they were putting on a display." Michel (1974) concluded that the UFO phenomenon can take place completely unperceived; therefore, if it shows itself, it is because it is "programmed" to be seen--a display.

The hypothesis that the UFO sighting is a "message" is more tenuous, because it rests upon the evidence supporting the hypothesis that a UFO sighting is a "display to the witness," which rests upon the evidence supporting the hypothesis that the witness is telling the truth! However, if the investigator is willing to consider the "message" hypothesis, he or she will be surrounded by many questions--all begging for attention. For example, Edwards (1970) hypothesizes that the aura, or bioenergetic field, of the UFO witness is different than that of other persons--hence the "selection" of that person for the UFO display. Clark & Coleman (1975) hypothesize that the UFO phenomenon is primarily a psychic--not a physical--phenomenon. Vallee (1975) suggests that UFO activity is a process for conditioning human beliefs; the major question is, are we in an "open" system or a "closed" system? Moyer (1975, p78) has provided a model for classifying UFO activity:

	A No Physical Contact	B Physical Contact
1 Observational	Instruments Remote-controlled craft	Villas-Boas Betty & Barney Hill
2 Messenger	Fry Bateman	Swift Adamski

Moyer (1975, pp78-79) argues that the majority of UFO reports fall into category 1A; category 1B indicates that "celestial intelligence" selects appropriate samples for desired data; category 2A indicates the selection of contactees, based upon telepathic traits which are not necessarily held by all humans; category 2B would require detailed arrangements and planning. Moyer (1975, p80) goes on to argue that the extra-

terrestrials want us to know of their presence but not in a manner which would be certain:

> They want the evidence to be known but not conclusively, so that we are forced to think and ponder about the reports, but we are always left with a strong element of doubt. Thus they have displayed truly great perception in obeying the principle of no interference; they have offered evidence of their existence, but they have not interfered in any way with our society. Only by exercising careful analysis, fundamental reflection, and belief on the basis of elusive information do we begin to modify our thought patterns and orientations concerning space people and the implications of these space contacts. They have not forced any action upon us; they have done something that requires extension of our capabilities and fundamental reworking of our thought patterns before it can influence us. We may respond to the celestial activity, but only through deliberate and willful action of our own, not through involuntary reaction to a positive stimulus.

If UFO phenomena are created by "space people," and if we are not "forced" to respond involuntarily, then it should be possible for us to investigate each UFO report with some sense of deliberation and detachment--along with eagerness and enthusiasm!

In my experience, there are four joys in UFO research: the fun (and fatigue) of a field investigation of a UFO experience; the fun (and frustration) of attempting to learn more about the inner mind of the UFO witness; the fun and (fuss) of discussing the implications of a UFO report with other investigators; and the fun (and fear) of speculating on the meaning and significance of the UFO phenomenon. In spite of the wild and weird anxieties and doubts which are a part of the total business, I believe that UFO investigation is one of the most challenging tasks available to a person of courage and curiosity. Now, if the reader is willing, let us turn to the case of Carl Higdon; let us consider the extent to which our investigations permit us to compare Carl's experience with various hypotheses about UFO activity.

Carl and Margery Higdon in November 1974.

PRELIMINARY STATEMENT: INVESTIGATION OF THE ALLEGED UFO EXPERIENCE OF CARL HIGDON

On Tuesday, October 29, 1974, I received two telephone calls: from Rick Kenyon, art teacher in the Rawlins, Wyoming, public schools, and from Robert Nantkes, vocational rehabilitation counselor of Riverton, Wyoming. Each man is known to me personally and each is a person of high intelligence and integrity.

The telephone calls dealt with the same topic: the alleged UFO experience of Carl Higdon, as reported to Sue Taylor of the Rawlins Daily Times (vol. 87, no. 204), Tuesday, October 29, 1974.

According to the newspaper article, Carl Higdon (a 40-year-old oil driller for the AM Well Service of Riverton, Wyoming) had been hunting elk on the north edge of the Medicine Bow National Forest (40 miles south of Rawlins) at 4:00 p. m., Friday, October 25. Then, approximately at 6:30 p. m., he placed a call on the radio of the pickup truck he had been driving to his boss, Roy Fleming, and gave directions about the approximate location of the pickup truck.

He said that it was parked approximately three miles from where he parked it initially; it was in a "mud hole" where no one would normally take a two-wheel-drive vehicle (as this one was).

A rescue party (Sheriff Ogburn, Deputy Sheriff Ed Tierney, Roy Fleming, Bob Rosacker, Dave Martin, Harold Schurtz) drove several four-wheel-drive pickup trucks into the area. With difficulty, they found Carl and the truck (at approximately 11:40 p.m., October 25). The truck was towed out by the four-wheel-drive vehicles.

Mrs. Margery Higdon, Carl's wife, was with Mr. and Mrs. Don James; they were waiting about two or three miles from the area where Carl was located. During the rescue operation, they observed a flashing light for about 20 minutes --changing from red to green to white, in a pulsing pattern, and moving in an arc which was described as "three feet," at arm's length.

When Carl was found, he was described as dazed and confused; he had difficulty in talking and recognizing his wife. He has said he was taken to Carbon County Memorial Hospital, approximately at 2:00 a.m., Saturday, October 26, for observation, and released around 10:00 a.m., Monday, October 28.

During his hospitalization, Carl said, the physician, Dr. Tongco, had X-rays taken. Carl was told that the films were OK. (However, he had been hospitalized for tuberculosis at one time in Kimball, Nebraska. Chest X-rays in 1958, and 1970, had indicated there was scar tissue on his lungs, according to a Kimball physician.) During his recent hospitalization, the physician, Dr. Tongco, told Carl that he was "OK," and his blood was "OK"--in fact, it was "super," "very rich."

Carl is hopeful that information can be obtained from medical personnel which will support these statements. However, the Sheriff has made some public statements which raise questions about his acceptance of the report.

Rick Kenyon said that he had interviewed Carl Higdon and obtained the basic description of his experience, plus some drawings of the "man." Carl agreed to other interviews, plus the use of hypnotic techniques, for the purpose of obtaining further information about his experience.

Fig. 1. Humanoid allegedly encountered by Carl Higdon (as drawn by Rick Kenyon).

On Saturday, November 2, 1974, Bob Nantkes and I met with Rick Kenyon, who had arranged an afternoon appointment with Carl Higdon, at his home. From approximately 1:00 to 5:00 p.m., we talked with Mr. and Mrs. Higdon, their children, and several relatives about their reactions to the events of October 25. The pendulum technique and other hypnotic procedures were utilized to obtain more information from Carl about his UFO experience.

Then, on Sunday, November 17, Rick Kenyon and I talked with Carl Higdon, his wife and children, from 11:30 a.m. to 1:00 p.m., including an hour of hypnotic procedures. Also present for a short period was Mrs. Marilyn James, who described her reactions to the experience of observing a flashing green-red-white light over the area where Carl was waiting for the rescue party.

During the interviews, photographs were taken of the map area (Section 5, 87 West, T 14 North) where Carl had been elk hunting. Also, photographs were taken of the bullet which Carl had retrieved and placed in his canteen pouch. He was willing to release the bullet, so that Dr. Walker, APRO consultant, might examine it. However, he asked that it be returned after the examination.

Carl indicated that he was willing to have his name associated with the UFO report; however, he wishes that his address be omitted from any publication of the report. He believed that most people accept his story, but he wishes to prevent any "crank" calls.

My impression of Carl Higdon is that he is a man of integrity, with an average education but a keen sense of curiosity about the world around him; he is an outdoors man and seems to have developed good skills of estimating size and distance.

Although the sighting of a single UFO witness often is difficult to evaluate, the indirect evidence supports the tentative conclusion that Carl Higdon is reporting sincerely the events which he experienced. Hopefully, further statements from other persons can be obtained to support the basic statement.

INTERVIEW WITH CARL HIGDON
SATURDAY, NOVEMBER 2, 1974
(Transcript reproduced here by permission)

The interview was conducted in the home of Mr. and Mrs. Carl Higdon, from approximately 1:00 to 5:00 p. m. Those present included Carl and Margery Higdon, their children (Rose Bryson, age 15; Lilly, age 14; Michael, age 12; and Lyle, age 11), and several relatives. Visitors present were Rick Kenyon, art teacher, Rawlins Public Schools; Robert (Bob) Nantkes, vocational rehabilitation counselor, Riverton; and R. Leo Sprinkle, director of Counseling and Testing, University of Wyoming, Laramie. A code was used to indicate the names of persons and their statements during the November 2 interview:

CH	Carl Higdon	LS	Leo Sprinkle
MH	Margery Higdon	Son	Son of Carl Higdon
RK	Rick Kenyon	Rel	Relative of Carl Higdon
BN	Bob Nantkes		

In addition a device (H) has been inserted at various points in the transcript to enable the reader to locate quickly those parts of it to which a commentator refers later in the chapter (see page 337).

For information about the pendulum technique and other hypnotic procedures the reader is referred to Cheek, D. B., and LeCron, L. M. Clinical Hypnotherapy (New York: Grune & Stratton, 1968).

CH They were just solid white lights--they weren't any colors, to speak of.

MH Well, do you want the other people here that saw the lights the same night that we saw them--that was out there with me when we went after Carl that night?

CH See, I want 'em to tell what I seen.

LS Hum [indicating understanding], yes.

CH She seen 'em, and her girl friend, and her girl friend's husband [Mr. and Mrs. Don James]. But her girl friend's husband, he says, "Well, we seen the lights, but I don't believe in that stuff you're talkin' about."

MH He says it's nothin' but a star, and she says, "Well, will you hold the pickup still?"

LS Yeah, now was this in the same area?

MH Out on the main road. And then we saw the lights comin' through the clearing like them bringin' him in, and we have C. B. radios in the pickup, and we asked 'em if they was comin' in and they said, heck, they hadn't even got to him yet; they just had him spotted, so there was nobody over there in that area.

CH If they were, boy, they were crazy, 'cause that's ba-a-a-d!

LS That's bad territory to be in, huh?
This was the same night, then? Had you seen lights earlier than that?

CH The time they seen that was somewhere around midnight, I would say, or thereabouts. The time of my experience, was between four and six-thirty.

MH It was eleven-twenty when we saw it. Because we asked 'em if they were comin' out yet, and they said, "No, we've just spotted him." And it would be about another hour and forty-five minutes before they could even--

LS Now, that was a Friday--a week ago Friday?

MH Well, yeah, it would be Friday night

LS Now, let's see, that would be the...

MH The twenty-fifth.

LS Yeah, the twenty-fifth. And how far is this out of Rawlins?

CH Oh, it's about forty miles south of here. I could show you close on the map that you got--you still got that map?

LS Had you been in that area before?

CH No, I hadn't never been there. I wasn't even goin' to

that area; but I run into those two guys out there that was havin' trouble with their truck, so I pulled up in front of 'em and give--charged their battery for a little while off the pickup; and they said the huntin' wasn't as good in McCarty Canyon. It was better in the north part of the National Forest, so that's where I went. Kinda wished I'd a went to McCarty Canyon! (Laughs.)

LS Yeah, right! Might have been easier in some ways, huh?

MH Let's see, the Tollis ranch is...

RK Is it close to the Tollis ranch?

MH Well, it was up by the Tollis ranch, is where we waited.

CH That's where they came out at. (Looking at map.)

MH It's quite a way from there because it took them around two hours.

CH There's Rawlins there, and Saratoga. See, I followed this road, here, all the way down. This little spur right here, evidently, is the one I was on. Seems to me like this was the road because I was inside the forest when I turned off; but there's another road that angles back, or maybe it was--no, this road right here.

MH Well, doesn't that map there have [inaudible]? That's what the radio said.

RK Well, I could photograph that with that camera and then we'll just take and get an aerial map from the VLM people.

LS Yeah, OK.

CH It don't have that road down in there. This is the road I turned off on, right here.

LS I'm going to try with this [camera] and see if it will do anything, but it may or may not. Do you just want to point to it?

CH It would be right down in here somewhere.

LS OK, now let's see, that road is coming out of Rawlins is US...?

CH Oh, I don't think it is any--any--

LS Oh, I see; I thought that US referred to--

CH It does keep sayin' US, but--

LS But that's in the north part of Medicine Bow, huh?

CH Yeah, the north edge.

LS Medicine Bow National Forest. And not far from Singer Peak?

CH Well, that's quite a ways over, you see, there's 22 squares in a mile.

LS Yeah, let's see. One, two, three, four--about four miles west of Singer Peak, would it be?

CH And then the way they brought me back out of there was down this road and--and back over in here somewhere.

LS That far away?

CH But there was no way that you could get a pickup back up through this road where my pickup had went down. They banged them four-wheel drives up pretty good gettin' down in there and back out. ◙

LS Yeah, and yours is just two-wheel, isn't it?

CH Yeah.

LS And do you have any recollection between the time you got there, and the new location? From what I heard before, the word was that when you called out, you were able to tell others where you were located. Do you remember that or not?

MH No, he didn't tell--well, he said there was somethin' about this sign--

CH There was a sign there, that just said "The north edge

of the National Forest," but just like I told Roy, "What national forest?" ... I didn't know!

Son Medicine Bow, wasn't it?

CH Yeah, but I didn't know that at the time, and that's another thing that I'd like, maybe you can clear it up and maybe not. I didn't know who I was or nothin', but I can remember everything from six-thirty on through and up to four o'clock, and then this story that I keep telling people... It's so vivid that it almost has to be true!

LS Yeah, from what I've heard from Bob [Nantkes] and Rick [Kenyon]... They had heard through others and talking to you, the story sounds very similar to the kinds of things other people have experienced, but it is very difficult for other people that haven't been there to understand and to know and to accept it. What I'll suggest is some relaxation techniques so that you can close your eyes and go back to those events, even if they're a little bothersome. You'll be able to go back to those things and see if you can pick up what happened between the points... So that the suggestion would be that you would still be able to remember what you have in consciousness already, and see if you can pick up something else; see if you can describe it and talk about it. Have you ever used any hypnotic techniques before? I don't know if you know anything about them.

CH No. I don't know nothin' about 'em.

LS Yeah. Have you ever seen the pendulum technique?

CH We was goin' overseas one time and an old boy was hypnotized with somethin', but I don't remember what it was they used.

LS Yeah. It doesn't really require a pendulum technique, although that is useful for some people if they want to find out more about responses. Holding it like so, with the elbow bent, and then "walking through" the four different responses. For example, if you would draw it like this... One technique is to say, "OK, here is one response, clockwise; another response is counterclockwise--in and out from the elbow, and back and forth in front of the elbow." Then if a person

would just hold it still and mentally think to myself, "What is my response for 'yes'"? You see I'm not consciously trying to produce it, but soon it begins to move in and out. For me, this is my response for "yes"--it might be the same for somebody else, it might be different. And then I think to myself, "what is my response for 'no'"... ? What's my response for "I don't know"... ? And what's my response for "I don't want to say"? And then it goes counter-clockwise. So then I can ask myself questions. Sometimes the information I have available to me is more than what I can consciously remember. So this is one technique ... there are others. Do you want to try it, and see what you can get with it? Now, you bend the wrist so that you can keep it out from the elbow; yeah, like so. Now, just "walk through" the four responses so that you can consciously produce them, so that you know what it feels like.

RK What's your response for "yes"?

LS Why don't you just go through the four responses... Push it like this so you know how it feels. OK, now clockwise... Now make it go counter-clockwise. Just so the hand knows how it feels. OK, now just hold it still and look at it and ask yourself, mentally, "What's my response for 'yes'?"

CH Yes. (Pause; pendulum moves and everyone laughs.)

LS Now, look at it and ask, "What's my response for 'no'?" OK. Now ask yourself, now "What's my response for 'I don't know'?"
OK, now ask yourself, "What's my response for 'I don't want to say'?" Clockwise, OK, fine. You get a definite pattern... It's interesting, you know, it's just opposite. Some people have one way and some people have another way. Now, there are a couple of limitations to the technique. One is I might want an answer so much that I get it; the other is that if I have a specific question, I have to be careful how I ask it, because it can make a difference. Whatever the internal process is, it seems to be very literal-minded. Let's try a few questions with this and then, later on, we'll try some other techniques.

LS How about asking yourself this question: "Do I believe

I had an unusual experience, Friday, October twenty-fifth?" ("No"!) H
OK, 'Do I believe I had a UFO sighting?" ("Yes. ")
OK, let's see, 'Do I think I was on board the UFO?" ("Yes. ")
'Did I see some occupants on the craft?" ("Yes. ")
'Were there more than two?" ("Yes. ")
'Did I see more than two?" ("Yes. ")
'Did I see more than three?" ("No. ")
'Did I talk with the occupants?" ("Yes. ")
'Did they move their lips when talking?" ("Yes. ")
'Did they have hands and fingers?" ("No. ")
OK, 'Did they have a chin?" ("No. ")
'Did they have eyes, nose, lips?" ("Yes. ")
'Did they have ears?" ("Don't Know. ")
Do you remember, consciously, if they had ears or not?

CH I didn't see any.

LS It looked like there was a little response that was starting out to be "No, " but then the "I Don't Know. " OK, let's see.
'Did they give me something to eat?" ("Yes. ") H
'Did they strap me in a chair?" ("Yes. ")
'Did the craft lift off the ground?" ("Yes. ") H
'Did I see the Earth down below?" ("Yes. ") H
'Did we go to a different planet?" ("Yes. ") H
"What happened... " OK, I was just about to ask you another question, and I see that it's moving the other way... ("I don't want to say. ")
I was going to say 'Do you remember them talking to you when you were on the other planet?" ("Don't know. ")
'Did they talk to someone else ... on the other planet?" ("Yes. ")
OK was there any decision? 'Did they make any decision about what should be done with you?" ("Yes. ")
"Was the decision to have you returned?" ("Yes. ")
"Was the decision to return you to Earth?" ("Yes. ")
"Was a blood sample taken ... from your body?" ("No. ")
"Was an examination conducted on your body?" ("Yes. ")
"Was information taken from you by some means?" ("Yes. ") H
OK, can you think of other questions that were happening? Do you have some questions that you want to ask yourself?

CH I don't know. (Laughs briefly.)

LS How does the information seem so far? Does it seem consistent with the way you felt at the time? Can you recall?

CH Seems that way.

LS You want to give your hand a rest?

CH I don't really know. You know, at one time you asked something and the ball started goin' all over, I mean, I don't...

LS Yeah, that was when... What was that?

CH The examination.

LS Which one was that? Was that when we go to the different planet, or talk... "Did they talk with you... Did they talk to you while you were at the other planet?" Was that the one?

CH Yeah.

RK The same physical observation--I concurred with that. And then the "decision to return to earth": there was tightening of the jaw muscles back up in through here, plus his ears twitched a little bit ... just a physical tightening.

LS Can you remember what that meant to you? You said that the pendulum was moving around like there was uncertainty, or maybe there are a lot of different answers.

CH No, not really. Cause the only thing that I can remember being said... I said, "The lights hurt my eyes," and they said, "We'll take you back."

LS That's all you remember being said, yeah. OK, yeah. Maybe what we could do is see if there is any more that you can remember about that.

MH Why is it there, Do-Do?

LS OK, let's see. Let's see if we can get the... Are

there some other questions that you can think of that might be appropriate to ask the pendulum, and then we can check... ?

RK I think some questions about the interior of the cubicle.

LS OK.

MH What about the pickup moved south, too? Now, this is the one that's buggin' him, is how did it get down there ... and while he was under at the hospital, he told me how it got down there.

LS Hum, but no conscious recollection of that time. Yeah. Have you told him what you heard from him at the hospital?

MH I don't know whether I have or not. Yeah, I think I did.

RK You mentioned it that night that I was up here and I wrote that down as being a question of a "time lapse."

LS OK, let's try the pendulum technique again and ask some more questions, here. Ask yourself 'Do I recall being able to see through the cubicle or craft?" ("Yes.")
"Inside the craft, was the interior very large?" ("No.")
"Was the interior the same size inside as it was outside?" ("Yes.")
"Was the interior about seven feet by five feet?" ("Yes.")

CH Seven by five, I would say, yeah.

LS Seven by five? Yeah. And how deep? Seven feet high?

CH It's like I say, I'm not too sure. ("Don't want to say.")

LS Now, let's see, OK. Let's ask this question, "If I did wish to say, would I say that the craft was deep ... that the depth was greater than five or seven feet?" ("Yes.")
OK, ask yourself this, "Do I believe the craft represented a different kind of dimension of space?" ("Yes.")
OK, now ask yourself this, "Do I think the craft

traveled physically from one planet to another?" ("Yes.")
"Could the craft have traveled by time rather than by space?" ("Don't want to say.")
"Do I recall what happened to the pickup truck?" ("Yes.")
"Was it lifted and placed in another spot?" ("No.")
"Was it materialized and placed in another spot?" ("Yes.") [H]
[To MH] Is that what you recall that he said?

MH Well, when he was under, he said, "They pointed a gun at it and it disappeared."

LS And later it was found in another spot. So it wasn't "lifted." It was, quote, "dematerialized." This is what the pendulum response suggests, too. Anything else that you can remember?

RK The seeing of the elk in the cubicle?

LS "Could I see the elk behind me when I was in the chair?" ("Yes" and "I don't want to say.")
"Was it done with a mirror?" ("No.")
"Was this some kind of extrasensory perception... Some kind of ESP experience?" ("No.")
"Was it some kind of total awareness of things around me?" ("Yes" and "I don't want to say.") (Laughter.) Can you recall what your feeling was at the time, when you could sense the elk there? Did it seem as if, you know, as if it was something like ... as if you had eyes in the back of your head, or was it a feeling that you could see it with your "mind's eye?" What was your feeling? Can you remember? Or did you just have the feeling that you could see it?

CH Well, this cage was, according to the picture I drew, it was there and the elk were in it! But I can't remember how I determined that it was a cage or not.

LS H'm! Do you have copies of that?

CH Really, this chair, like you set down in it, is just like a big high-backed bucket seat, like on a sports car; but it was real plush, and these elk were supposedly behind me. Now, how ... whether they were transported there before I was, and I seen 'em as I entered, or

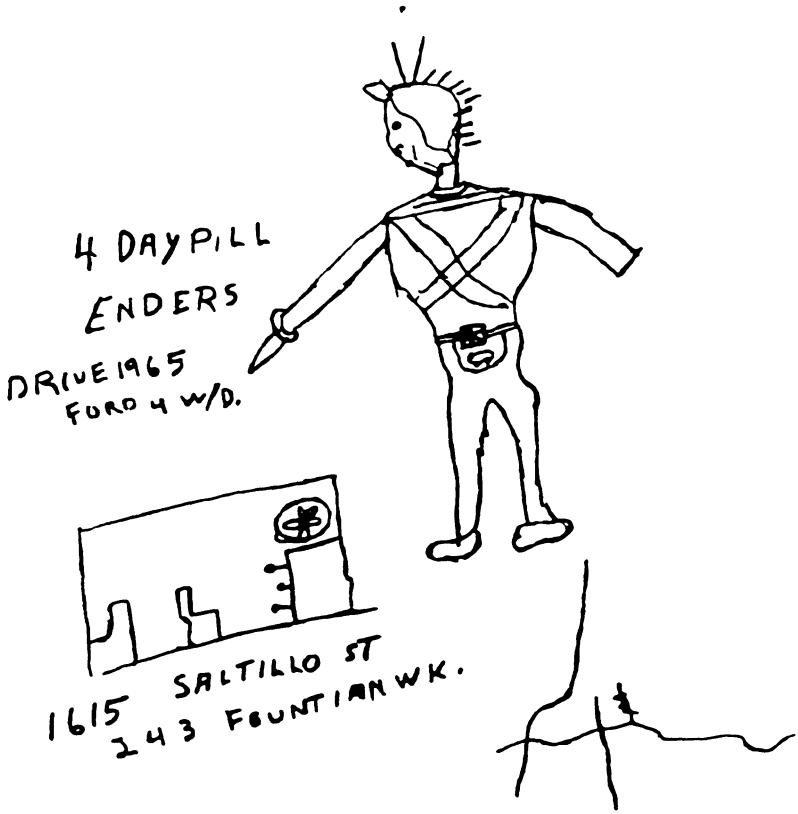

Fig. 2. Sketch by Carl Higdon drawn Saturday, November 2, 1974, of humanoid allegedly encountered and upon which Fig. 1 is based in part.

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what... But I can't remember there bein' no doors or anything... Just like you was dematerialized here, flyin' through there, and set down here... I can't remember no doors bein' in this cubicle.

RK Did the elk appear to be normal size?

CH Yeah, they were just out in the field there, and then (snap) inside this cubicle ... I just can't recall how I seen them in there. But, no, I wouldn't ... I'd have to go along with the ... three people, six feet, and

five elk can't fit into a five by seven cubicle and be the same size ... there's no way!

LS Did you have the impression that these were real live elk?

CH Yeah, they were alive, as far as I can tell; I mean... But this right here, I drew this Saturday morning before I ... any memory returned of who I was... I drew this stuff here. This I drew first, and then I drew this, and I wrote these letters. This, instead of bein' Enders, was Eaton, which drove a sixty-five Ford four-wheel drive... Now, he's the last one that seen me.

MH While you were out, well, you still kept saying "Enders."

CH Well...

LS Were you referring to a guy named Eaton?

CH No. Really, I just run across him up there. He was the last guy that seen me.

LS Oh, I see.

CH Around four-o'clock Friday afternoon. We talked up on top of the hill. I told him I was goin' to walk down over the hill. He said, "You're not drivin'?" I said, "No, I'm goin' to leave my pickup up here, 'cause I don't know how the roads are, and I'm goin' to check 'em out first 'fore I try to drive down in there." And boy, I want to tell you, you go down and look at those roads, and there ain't nobody would try to drive a two-wheel pickup down in there! There's just no way! Now, these are addresses, by the way. I wrote those down when I still didn't know who I was, but this was an address where I grew up at in San Antonio, Texas ... Same way with this one. Both of these addresses are from San Antonio, uh, we lived there for about eight or nine years, and this other one for a couple of years. Now, all of this was done before I remembered who I was.

LS Yeah. Is that Fountain Walk, or... ?

CH Yeah.

MH We have checked with the Sheriff and there was an Enders hunting, but he was hunting at Battle Mountain, quite a ways from where our car was. And he has a young kid the way Carl described him, too.

LS Enders was driving a four-wheel drive?

CH Yeah.

LS I see.

CH But this Eaton was the one I was talking to, not Enders. 'Cause they got ahold of this Eaton and I had talked to him around four o'clock. Now, what this Enders has got to do with it, ain't nobody got ahold of him to find out. This fellow that talked to me was from Rawlins, and this Eaton is from Rawlins, and this Enders that they say was down there was from Rock Springs.

MH He was originally from Rawlins. (Pause.)

CH Maybe that is the way the pickup got down in there, I don't know.

LS Yeah; you don't have conscious recollection of that now?

CH I been thinkin' about a lot of different explanations, but I just... (Laughs.) None that would really seem realistic to our part in this night... So I really don't know.

LS I've heard from Rick the kind of general description, but I wondered if you would be willing to describe a kind of summary of the things that happened to you as you recall it now. Would you be willing to do that?

CH Well, yeah.

RK Would you hand me that paper, Leo, and I'll go ahead and reproduce this.

LS Yeah.

CH The last I can remember of the day, was talkin' to this Eaton up on the top of the hill, and I told him I was

goin' to hunt lower. I hadn't seen no elk on the side of that hill over there, and I figured maybe they were down lower like they were up in Lincoln Park. So, I walked down over the hill and ... 'course the trees and stuff were between five and seven feet apart, and down over this crest, and there was a clearing down at the bottom, and this is where I seen the elk ... and there was five of 'em. One three-point bull, and naturally I have, we have a license for those and I wanted to get me a bull! I just raised my gun and shot, and I could see the bullet move through the air, and it went out about 50 to 60 feet and it just hit somethin' and it stopped. [H] Now, at this point, I didn't realize anything was wrong, and then I get to thinkin' back on it now, there was no sound or nothin', once I topped over this hill... It was just like you was in a void... No birds or nothin'. And I believe these guys that come in down there that night said the same thing. They didn't hear no sound, didn't raise any kind of wild life when they went down through there. I seen this bullet hit, and then I heard a branch snap and, naturally I am careful with a gun anyway, but my gun went down then. See, as I turned around, my gun was pointin' towards the ground other than towards maybe somebody that was standing up there, you see. 'Course I've read a lot of articles in books about these guys shootin', you know, and then lookin' later, and I just figured I didn't want to do somethin' like that, so... My gun was down, and when I looked up, well, here was this guy standin', and he said, "How you doin'?" And I said, "Pretty good." And then he said, "Are you hungry?" And I told him, "Yeah, a little," and so then he threw me this package of pills. See, there was four of 'em in this package. He told me to take one of them and that'd last me four days. So ... I don't know why I did it, I just tore it open. You know, it was the kind of package you get these two-way cold tablets in, you know. More like "Contac." Then I took one, and then he asked if I wanted to go with him. And I said, "I guess!" So then the next thing that formed in my mind was, "Well, we was inside this cubicle!" And this is where I'm kinda fuzzy... I don't know whether the elk were already in there when we entered or whether... But whenever I got in there, I don't remember standing up. The only thing I remember was setting in this chair with my hands like this, in this seat, and then these deals come out from this side ... from the right

and from the left. They come across my arms and hooked in this side ... and the same way across my legs ... which, therefore, my hands were pinned down. And I noticed these guys' hands weren't pinned down; so evidently when they sat down, they were like this ... until these deals come around the body, and then they had their arms free. But, and then the next thing I can remember, is looking down, and there's this big ball ... like a basketball... You know, you could see right through the floor of this ... whatever this vessel was. And then the lights were, when we landed ... I presume we landed. We got into this area where the lights was so bad that I just couldn't stand it! And how my hands got up around my face, I don't know ... unless we had landed and these deals had released and... I just told him the lights hurt me too bad, and I just couldn't take it! They said, "Well, we'll take you back." They said, "Your sun burns us..." They didn't say, "Hurts your eyes," he says, "burns us." [H] And all the story ... I can't remember those guys gettin' in the sunlight, whatsoever, unless it would have been on the takeoff, which I can't remember nothin' except lookin' down and seein' this big ball below me, you know. But the lights were all different colors, you know, like they was on a pendulum... Oh, what's that cafe in Seattle, at the World's Fair? It turned, rotated?

LS Space needle?

CH Yeah, but these were about a foot strips of light goin' up this deal ... all different colors, and then rotatin', see? And I just couldn't stand the light, so they said they'd take me back.

LS Not only was it bright, it seemed to actually hurt?

CH It was just like looking at an arc welder, you know, only... The next ... well, whenever they got me into town, the lights hurt my eyes, but I didn't have ... it wasn't like sandpaper, you know, like your eyes get arc burn... I've had my eyes arc burned before, and it wasn't exactly like that, it was more like, I don't know, if you can call it a soothing burn, instead of...

LS Irritating?

CH Yeah, irritating burn.

BN Were you conscious, or after you got back, were you burned around the eyes? Like maybe...

CH No, just my eyes, I think somebody, I believe it was Roy, said, "God, look how red his eyes are!" But it was just the inside; I don't think the outside was so bad, it was just the white part of the eye was just all red.

BN I've seen it like when you braise or something, if you don't have some protection, or something...

CH No, it wasn't on the outside, it was on the inside of my eye ... and they just watered all the time. I can remember laying there on the hospital emergency room ... and they had to put this washcloth over my eyes, and then they turned the lights off also. But my eyes ... the water just poured out of 'em. But other than that, I can't remember any...

LS Then what's your next recollection, after they said, "Well, we'll take you back"? Did you have the feeling of going back?

CH No, I really didn't feel nothin'. When they said, "Well, we'll take you back," then the next thing I can remember is walking down this road, if you want to call it that. I would have called it a cow trail! But I was walking down this cow trail, and then I seen the pickup settin' there and it didn't dawn on me that it was mine. But I had my gun, and this is another thing that was funny, I don't remember takin' the gun with me but I remember walking by the pickup and havin' the gun in my hand, see ... so ... what happened to the gun, I don't know. Then I walked past the pickup and I looked at the road, where just like I told Roy Flemming over the radio, "Anybody that drove a pickup down there had to be nuts!"

LS Especially at night, huh?

CH Well, this was in the daytime. Well, no, it was startin' to get dark about that time, but the pickup was already there, so evidently somebody drove it in there in the daytime ... if it was drove in there! Just like I

told them over the radio, they'd have to be crazy to drive a pickup down there, 'cause the ruts were deeper than the wheels... You'd have to "high-center" comin' down through there. And the trees were close enough to the road to where you almost had to stay in the ditch. And without a four-wheel drive, there's no way you could keep the front end up, you know. You have to have somethin' pullin' in order to hold you up out of 'em. But the part ... the gun ... that kinda... Well, ever once in a while, that kinda bothers me.

LS How'd that happen, huh?

CH Yeah, where was the gun when we were in this cubicle, and how did I get it back, and how did I get approximately four or five miles farther east then where I was to start with?

LS And the time ... what time was it, about four-thirty in the afternoon when you started hunting?

CH No. Whenever I started down over this hill, it was just shortly after four o'clock ... I'd say, probably, maybe four-fifteen ... no later than that ... according to this guy that they found out there that I talked to at four o'clock. It couldn't have been over a fifteen-minute walk away from where I went now, over this hill.

LS Yeah, and then the place where the pickup was. Do you remember what time that was? Was it just about dark, was it?

CH Well, it was about six-thirty. It would have had to been around six o'clock or six-fifteen, because I'd walked about a mile past the pickup and it was startin' to get dark. I turned around and went back to the pickup, figuring that would be... If I had to stay out there all night, I'd be better off in the pickup than I would out in the cold. So then when I got back to the pickup, I heard this woman talkin', and so I started the pickup up. Well, I fiddled around there and found the key, which was in the ignition, which, I wasn't sure where the key ... where the keyswitch was in this particular pickup, see. Just as I told Roy, after talkin' to him, that, even if the pickup wasn't stuck, I couldn't drive it anyway 'cause it had this funny-looking stick

shift down on the floor! And I very seldom drive an automatic--usually always a four-speed. But at this time, I couldn't remember. The fact is, when I learned how to drive, it was a thirty-five Ford with a stick shift in the middle, you know ... that's normal. But the...

LS Did you ever figure out what it was that you were hearing when you said you heard a woman talking... ? Not over the radio?

CH Yeah, it was over the radio. She was talkin' to, well, at that time, it was a guy by the name of John. And then I cut in on her and asked her if she could help me. I was somewhere down in the woods, and I didn't know where I was and I didn't know who I was. I asked her two or three times, so I figured, well, maybe you can't "send" in that area. So, then pretty soon Roy Flemming come on the radio. She wouldn't talk back to me, but Roy did. Then they... I rummaged around in the glove box and stuff and found out what the pickup number was and told him so they'd know what pickup they were lookin' for, and then the rest of it is kinda like ...

LS Yeah.

RK What time was it when you made radio contact; do you have any idea?

CH Well, according to Roy and Margie, it was around six-thirty, you know, made radio contact with Riverton.

RK What time did they get to you?

CH Oh, somewhere around eleven-thirty to twelve o'clock. Somewhere in there.

RK What did you think of in the process?

CH Well, I didn't have much time to think, because they left this woman up in the office there in Riverton, and every five minutes or so, why she'd call and make sure I was still there. 'Cause they didn't want me gettin' outa the pickup. They thought I'd fell and hurt myself. It was their response when I told 'em, I says, "No, I ain't..." I told 'em over the radio, I said, I didn't

feel like I fell and hurt myself, I just ... my back, my neck, my head hurt me... You know, I still don't believe I fell. Course they ain't nobody else says so either. (Laughter.) Anyway, the doctor ... they took X-rays from about my knees to the top of my head, and they didn't find no bruises, no marks...

LS You said you had a tender spot on the head or back of the neck?

CH Yeah, right on the top of my head Sunday night... Last Sunday night there in the hospital they had to give me some tranquilizers or somethin' so I could go to sleep. Then this guy there in the room said I had a heck of a time goin' to sleep, even with both those pills in me. He said I was tossin' and turnin' most of the night, so I don't know what I was dreamin'... I don't remember. (Background conversation.)

LS Now, as you think back on it now, do you recall ... do things come any different to you in terms of sleeping and dreaming... ? Do you get any flashes about those things?

CH No. Just the only thing was the pickup ... How it got down in there... How the gun could shoot a bullet like that? Which I'm not goin' to say, because I really don't know how a seven mag. could shoot 50 feet and come out lookin' like that! It's just not feasible ... not possible! Unless you were shootin' into a pretty thick steel wall... I'm not too sure that that mag. wouldn't go through just a piece of quarter-inch steel; 'cause it'll go all the way through a telephone pole at a hundred yards with no problem.

LS And this was ... there was nothing in the way ... no tree or anything like that?

CH No trees, or nothin'... Well, there's trees, but you know, they were scattered out, five to seven feet apart. There was just no way that there was a tree or nothin' like that in front of me when I shot.

LS Yeah. Could you hear any sound when the bullet... ?

CH No, it stopped. Funny thing, when the bullet went out I heard a splat... But I really can't remember the gun goin' off, you know, like maybe...

RK Was there a spent shell in the chamber?

MH Yes.

BN This wasn't one of the rounds that you carried that came out of the gun at that time?

CH Yeah.

BN This feels like it's got the... This was the chamber and it feels like the rings of the lands of the rifle barrel. Feel the rough edge around the top of the case ... a little under the chamber.

MH Is that all of 'em?

BN Well, it possibly could be just in the manufacturing.

CH No, these ... all these up here's the one's I was carrying in my pocket. These are all out of the same box.

BN Yeah, yeah, that's in the manufacturing, where they crimped it.

RK Do you have the empty chamber, the empty cylinder that the bullet came out of? Not the bullet itself ... the casing. Is this the casing here?

BN Yeah, that's just the crimping of the bullet.

CH These all came out of the same box. I've been tempted to go out and fire a couple of them and see if they'll move, you know. I'm kinda scared to do it, but all the rest of 'em did, because I sighted my gun with 'em.

LS When did you pick up the bullet?

CH Now this I don't remember. I don't remember ever movin' from where I turned around with the gun to talk to this fella ... I don't remember ever movin' from there. But this ended up in the same place that I would put a rock or somethin' that I'd want to keep, and bring back to the house ... which is in the canteen pouch.

RK Was there anything else in the canteen pouch?

MH I haven't looked. This wasn't really in the pouch, it was just in the folds of the canteen belt.

BN 'Course on that gun ... if you're thinkin' in terms of an underload or something... If it was, it wouldn't have deformed the thing to that extent.

CH I wouldn't think so either, but traveling 50 or 60 feet, it don't look like it'd be that much damage. I've tried to come up with somethin' that's ... that's ... somethin' that somebody, if you walked down the street, you told 'em your gun had done this, they'd believe you, you know. You go down there and tell them you done this, well, no way! Not in that area, because there's no steel--there's nothin' out there that would cause that. If it wasn't real bad, I'd like to go out there and look again. In my own mind, there's just nothin' there except spruce trees, or whatever you call them white spindly trees ... aspen ... and that's all there is there... And that stuff's not hard enough to do that to a seven mag. shell that was comin' outa there at thirty-six hundred feet per second. But then, you don't see one when it comes out the end of the barrel.

LS Yeah, right. You were able to see this, though?

CH Yeah, well, you know, when you're lookin' down the scope, and you pull the trigger and you can see the bullet come outa the end, but I can't remember no real loud bang, you know. That thing sounds like a cannon when you shoot it ... right next to you. And I can't remember the noise, but I do remember hearing a... Well, you see the bullet go out, you know, and splat! Just like that ... and then it fell, but I don't remember ever pickin' it up.

RK Something that I noticed about the rifle, too, is that there was a fingerprint on the front lens of the scope.

CH It's probably still there because we've never cleaned it, and I haven't even touched it.

RK And that's just not a place to find fingerprints on a gun.

CH Any hunter knows better than to put a finger on the end of a gun. Everybody that handled the gun that night

were hunters. In fact, there's me and Don James was the only two that handled the gun that night, until it was brought back over the hill.

LS H'm. Have you looked at the fingerprint? (Pause.) (Looking at rifle.)

CH Unless Don messed with it.

MH Don took it out of the pickup because the minute I said "elk," you started looking up, and stuff, and I was a little bit scared; so I told Don to get the rifle out of the pickup. So Don just picked it up and took it out of there and put it in his own pickup.

RK I noticed it right... Well, it doesn't look like the same one.

CH Like I say, it's been back there... I don't think anybody's bothered it.

RK You can still see the smear across it. Just a little bit of one ... it's a lot fainter than the night I saw it.

LS I wonder when you were coming back ... when you couldn't understand how the rifle was in your hand, I wonder if someone ... if it were possible to get a print of it?

MH You know sometimes... Well, you can ask Dr. Lasco... The mark is gone again now. What day was it you was down to Dr. Lasco?

CH H'm, it was Thursday or Friday.

LS Was there a spot there? (Looking at CH's head.)

MH He had a spot right here. Dr. Lasco said the only thing he could attribute it to: it looked like a broken blood vessel. It was just a purple spot ... it was an oblong...

CH It run up and down this way--like this.

MH He says it looked to him like a broken blood vessel.

LS You don't remember anything about that?

CH All except the helmet. I don't even think I said anything about the helmet--when they put the helmet on me. These guys, they didn't ... in other words, they didn't walk over and pick up somethin' and bring it to you, you know, they just point this deal that come out of the end of their hand, like this, and, whatever it was, it would just...

RK Move over, huh?

CH It's just like, what do you call it, levitation?

Son Gravitation?

CH Gravitational force, or somethin'. They'd just point at it like this and it would just move! The same way when we took off, I could remember him... The reason I said their hands were free, was 'cause this guy stuck his hand out like this and this deal come out ... it's like a cut-off sleeve ... like his coat was too big ... and this deal would come out and he'd do like this, and this lever on this control board would just move down. You could feel the movement, you know, but really not that much. It wasn't like that, oh, what was it they's talking about, this ol' Evel Knievel a while back, five thousand G's or somethin' like that? It didn't feel that way... It just felt like it was ... was just...

LS Just a gradual...

CH Gradual shifting. And then maybe, the reason I can't remember nothin' else on that flight, maybe it was that fast, and then maybe again, it was just all the seein' this big ball down there ... that I just didn't pay no attention to nothin' else. It was, it's just...

LS Now, you don't remember coming back and seeing that same ball coming back again?

CH No, the last thing I can remember is the lights were too bright, and he says, "Well, we'll take you home." And the next thing I can remember is walking down this road and runnin' into the pickup. Well, I didn't really run into it... I seen the pickup and I walked by it, and then, whenever, I came back to it and got ahold of the office. I can't remember the trip back; I can't re-

member how I got that far down from where I was, and I don't remember how I got my rifle back... But I do remember my hands being like this in the seat, where I couldn't have had a rifle in either hand; so I don't know where the rifle went... Other than they took it from me, and then give it back when we landed, I don't know.

Son They could have put that fingerprint, too.

LS Yeah, when it was handed back.

MH Then when they found him, he was just in a state of shock--he wasn't really scared, he was just in a state of shock, and as soon as the Sheriff opened up the door, Carl looked at him and he says, "Why aren't you dressed like the rest of 'em?" (Laughter.)

Rel Well, did those spacemen, or whatever you want to call 'em, how did they ever get back into the cubicle?

CH Now, that I can't tell. I don't remember.

LS Did you see the cubicle when you were looking at the elk, or did you just see the inside?

CH No, I didn't see the cubicle. He just... When I turned around, this guy said, "You want to go with me?," and then I looked up on the hill, and all I can remember seein' is just a thin outline like this ... of this transparent cubicle. I call it a "cubicle," I don't know what else to call it. Uh, it was just illuminated ... But this was all you could see ... you couldn't see nothin' else visible other than just this outline. And then when you get inside, they had three levers, now what these other two levers were, I don't know; but they only used one that I seen, and it went down when we were in orbit, or whatever you want to call it ... I don't really know. These are the things I don't really know. These are the things that maybe, eventually, I may, and again I may not... I may just forget all of it, I don't know. I haven't forgot the things that did happen... I haven't forgot them yet ... so, maybe in time I'll get the rest of the picture, I don't know.

[Here ensues a question about the "163,000" which Carl re-

calls as a number of "miles" or the number of "light miles" (sic) which the cubicle traveled. Carl restates his belief that he was told "163,000 light miles"; Rick Kenyon describes his conversation with a science teacher about the possibility that there could be some large object within 163,000 miles of Earth.]

RK I was just discussing this with a science teacher; she said the only thing that was out there were some possible asteroids at that particular distance, and those would be very insignificant ... radioactive asteroids.

MH Wouldn't it be possible that that would be how far it was to their bigger space ships, since this was just a little one? Then could this be the light that we saw?

LS Now, what did the light look like to you. Was it high? Or on the horizon?

MH It was--if I could take you out there, I could show you how high it was, because it was right to the tip of this one tree, down at the edge of the road, where the road bended. I didn't notice it at first, Marilyn did. I--with elk huntin' and everything--I got so that whenever you go along, you know, I mean, you're watching the treeline. You watch for something to come out. At first, we thought it was a helicopter, because we had requested aerial, uh, to help search, and Marilyn said, "Well, look!" And we looked out there and we thought at first it was a helicopter, but it was too high to be a helicopter for searching. Then we got to looking at it and it would be too low for an airplane--and it wasn't moving fast enough for an airplane--and when we first saw it, it was right up in back of the tree branches. I started watching the side of the road again and Don started to go to sleep, and all of a sudden, Marilyn said, "What in the world!" I said, "What's the matter?" She said, "That thing's doing the loops!" Don looked and he says, "Ah, go back to sleep!" She says, "No, it's moving, it's doing the loops!" About that time, I looked out there, and I had noticed that when we first saw it--we'll say here's the tree, and when I looked again, it was about over to here. But we also noticed that when I was looking out the window on this side of us, the moon was behind the tree, and the moon had also changed this much, too, and we were only there for 20 minutes--in this particular area. Now, the universe doesn't move that fast, does it?

CH I think you got a little hypnotized!

MH And then about this time, we saw the bright lights coming out of the treeline more like, you know, down at the bottom, like cars coming out. We said, "Well, here they come with Carl." And so Don got on the radio and asked them about them that we saw. And they said, "hah!" They said, "We've just now spotted him and we haven't even got to him yet!" And they said that they would be comin' out a different road and even going to try to attempt to come back on the road that they had went in on. So they told us to meet 'em farther down, so that's when we took off from there and went on farther down. And then when they did bring Carl out, it was like the sun was rising. This was about, right around between one o'clock and ... we got back to the hospital, what was it? Two-thirty, I would imagine.

RK It was an extremely bright night--even in Rawlins--it was too damn light to be night. It was a strange night.

MH But when we got back to town, the sun wasn't rising over here. I mean that's what it looked like over there --like the sun comin' up, you know. But, here in town, when Roy brought me home, it was still totally dark out there, except for the airport lights--you know, just the regular lights. And I didn't even think too much of that light until after I got here, you know, and looked out and it was still dark, you know, and out there it was like the sun comin' up.

CH I know a few of the guys that was out there huntin' that night and said that they could have dropped a needle on the ground and reached down and picked it up. That's how light it was outside. This was only a three-quarter moon, you know; it wasn't a full moon.

MH I wanted to get out and walk, and the roadway was completely illuminated.

RK I just thought of a question. You remember when you were taking the pills out of the cellophane, Carl? Took them and put them in your mouth? What did you do with the cellophane? Do you have any idea at all?

CH No, I don't. It seemed to me like these pills come in

a package of four. I tore this one open and took the pill, but I slipped the package in my shirt pocket. But then I told them, too, at the hospital, I guess, to get the pills. You know, they were in my shirt pocket, and they looked all through my clothes and they couldn't find them.

MH OK. A question: how did you swallow a pill without anything to drink? You cannot take a pill without liquid.

CH Don't ask me!

Son You can too, Mom!

MH I can. Your Daddy can't.

CH I don't even take an aspirin unless I got that much water to go with it.

MH And then you gotta browbeat him to even take it!

CH I don't know; maybe I figured it was candy. I can eat a lot of candy.

Son Did you chew it up, or did you just swallow it?

CH Now, there's a question I hadn't even thought of, Son. I really can't say whether I swallowed it or whether I chewed it up. But I do know if what I said, those were good for four days--their days are only ten-hour days according to ours. Because about forty hours later, boy, I was starved enough I could of eaten a horse. But until then, I wasn't even hungry.

MH Up at the hospital, he was like a whipped puppy. He'd look at you like "I ain't goin' to, but OK." You know, "I'll do it if you don't whip me, but I don't want to do it."

CH I really wasn't hungry all day Saturday, until about eight o'clock Sunday morning. Well, I woke up a little before eight; and about eight I was hungry enough I could of eat two horses if they'd a been there, and then they give me that old paltry breakfast, you know.

MH I made him eat Saturday.

RK What did he say that he doesn't remember? Now, you mentioned the thing about the levitation, or the dematerialization of the pickup. Now, did he say anything else--irrationally, or rationally--when you got there?

MH You mean at the hospital, or when we first saw--

RK When you first saw him?

MH When I first got to him, I opened the pickup door, and he just looked at me like, well, like you were just looking right straight through him. And the first thing I could think of to say to him that would maybe make him think or anything, I said, "Oh, Honey, did you get any elk?" And the minute I said "elk," he started looking out the windshield like this! I just figured he was looking into the tree line, you know, I mean. And the look he had on his face scared me, though. Don was on the other side of the pickup. The other guys--the pickup was just about out of gas, and we had got plenty of gas with us; so they were out filling the tank. I told Don, I said, "Get that gun out of the rack," because I didn't know what "buck-fever" is, but this is the only thing I could imagine he had, you know. So I told him to get the gun out of there, and he was shaking. So I took my coat off and tried to put it around him. "Don't you dare touch me! Don't you dare touch me!" That's all he would say. And I just kept telling him, "It's all right, it's all right." And I went ahead and put the coat around him, and he went ahead and let me put it around him, but I was not to touch him. And after that, well, with having the doors open and shaking like that and being in shock, well, we figured maybe it would be better if maybe he just stayed warm, so we just shut the doors. Then I just stood there by the pickup until after they got it gassed up and got goin' on farther in. Well, Roy got to feeling so sorry for him settin' there in the pickup with his head down on the dash, so he stopped the Sheriff that was driving, and they opened the door up to ask Carl if he wanted to ride in the car. And then all hell broke loose. Excuse me, but--. We were riding three pickups behind so what all happened, I don't know. All I know is when I got to there, Carl was in--here's the road, here's your ditch, bar ditch, and fence over here. Carl was standing out close to the fence, and he was crying and he was holding his hands over his eyes. He says,

"Those lights, those lights, get those lights out. Help me, God, help me! Get those lights out!" And Bud and I both walked up to him and he yells, "Get outta the way, get outta my path!" Then as soon as--there was seven vehicles--now when you looked around, there was an awful lot of lights there, and so we told everybody to get back in their pickups and get those lights doused. As soon as we got the lights doused, and we got out of his way, well he started to head towards the back door of the car where Roy had it opened. He walked right up to the back door--it was opened--but he opened it a little bit farther, and he just slammed it! He got in the front seat, closed the door, and we went on to town. Then when he got to the hospital, he kept hollerin' about his pills, his pills. He don't take pills! We kept asking him, "What pills?" "Four-day pills, four-day pills!" And the "men in the black suits," the "men in the black suits," the "four-day pills," and the "pickup." He said, "I don't know where the pickup is--how did it get there"? The nurse asked him, she says, "Well, what do you mean, pickup--how did it get where?" He said, "Those men and a gun." She said, "What?" He said, "They just pointed and it disappeared."

RK That may explain how he got in the craft.

MH He kept complaining he had to have those pills--he had to have those four-day pills, and that was all the sense we could make out. Then the doctor came and the doctor said, "Well, this sounds like a science fiction movie." And the nurse that was on duty up there, either her father owns his land, or her husband does, one or the other. She said, "No, knowing the area where he came in from, I'm not one bit surprised he's in the shape he is." And he kept complaining of the light, and we had a washrag all doubled up about four times over his eyes. They finally even turned the lights out. His eyes were just like, well it was like he had a little tiny sprinkler back here running on 'em, I mean, it just kept running continually. And then the nurse, she asked to see his eyes and Carl says, "I ain't on dope! I ain't on dope!" She says, "I know it, but we gotta look at your eyes." But, "I ain't on dope!" And then the funny part of it was, his head hurt. She'd reach up and touch and say, "Where does it hurt, here? Here?" "Yes, Ow! Oh, oh!" "It feels fine now."

And then she'd ask him, where would it hurt, "on the bottom part here?" and he'd say, "Well, I hurt here." Well, he didn't point at any thing; he just said it hurts. She was rubbing her hands and he said, "Yeah, there. Oh, oh, it hurt, oh, oh!" And as soon as she would touch it, "It feels fine now!" (Laughter.)

LS (Laughing.) That's a good number! Special healing power!

MH He was telling her, you know, where it hurt bad, and as soon as she'd touch it, it would hurt real bad and then, just like that, it don't hurt no more!, and then she'd go back over those spots [on his head] and say, "Do you hurt here, do you hurt there?" And he said, "No, no!"

CH Well, I went over to Lasco Thursday. He's a chiropractor here in town. I been to him several times. He asked me, if when he started to beat on my back, he said, "What did somebody do, hit you over the head with a tree?" And I said, "Naw, I just feel like I been pushed together like this and then pulled strong apart." That's just the way I feel. I still, in my neck, right through here, I get a hard spot in there once in a while. I'll go back over there and see him again, I guess. But that's just the way my muscles felt--felt like they were compressed and then just yanked apart. I do know that in order for, rationally, in order for three men, the size, well, my size, and five elk to be in a five by seven cubicle, you have to be shrunk; there's no other way--that you can get that many people in, and five elk, inside a five by seven cubicle. You'd have to be shrunk--there's just no other way. I mean, that's just the way my whole body felt--like I'd just been like this, you know, and then pulled apart.

BN As you recollect it, they were all standing up?

CH Yeah, they were all standing. Well, these two guys--I never did see them standing up inside. They were seated in--the seat right next to me was empty, and then the next two seats farther over. They seemed like they kept their distance, you know, they wouldn't get close. They would just stay farther away from you.

LS Remember with the pendulum technique, the answer that you gave was: "Were there more than two?" "Yes." "Did I see more than two?" "Yes." "More than three?" "No." But, consciously, you remember only seeing two.

CH I can only remember seeing two.

RK There was only [inaudible], because you asked for occupants.

LS That's right--could be.

RK I wrote that down as a question.

LS OK. Now, if you want to have some more coffee, and then why don't we practice some relaxation techniques and then see if we can get not only more of the memory but whatever the "feel" was of those things that happened. OK?

[Here follows a question about the star Carl said he saw on the strange beings' belt buckles.]

CH Right there on the belt buckle of being a gold, kind of a yellow-gold star, but this part down here is like a cloud, you know. It was like I drew it here, I mean it's kinda jagged affair, you know like--it wasn't really like lightening, or--

LS Can you draw one right there?

CH Well, I would say more like--come up, and around--it kinda had a--kinda oval shape in the middle, it wasn't straight across at the top ... it's...

RK It dipped a little bit?

CH Yeah, it was something like this, but really it... The thing that really got me was the star above it in the belt. This lapel-like deal that come down, it was black, too, and the only thing that set it off was, it was kind of set out from the rest, like these...

RK What color was the bands across?

CH They were black.

RK And the suit was black, too?

CH The only thing that set them off was that they was set out, you know. Close enough to where you could see that they were set out away from the rest of the material... They were like, I don't know, just like, you know, you've seen these school guards, you know that you set these deals across...

LS Yeah, kind of a uniform, yeah.

RK Did they go clear over the shoulder?

CH That I couldn't tell 'cause I never did see the back of 'em. It looked like they would go up to the shoulder, and you know, you couldn't see no farther. You know, this one guy in particular is the only one that I really seen. I was aware of another, another person, or "being" being there, but I really don't remember seeing him as much as I did this one. Course this is the first ... the one I encountered first.

LS Did that look like a six-star, or a six-point star? Like this, was it? And something in the middle there?

CH No. It was just like a six-point star.

LS And then a kind of apron or little lap covering?

CH Like a lapel, or whenever they set down, it looked to me like it would be settin' in their lap, you know. That they could look straight down at. The design in this is kind of fuzzy. I don't remember it being either straight on the bottom, or straight on the top. The end was kind of curly, you know. If I was an artist, I might be able to draw it for you.

LS OK. Now let's give you some suggestions on relaxation, closing your eyes and goin back. After we do some relaxation things first, then I'll give you some suggestions on "going back" and seeing if we can get more impressions on these things, OK? Have you ever done some relaxation techniques? If you haven't, I'll repeat some phrases out loud, and suggest you do this to yourself, too. If you have your feet on the floor and your hands on your lap, it will probably be easier. First of all, just look at a spot... If you want to

look at the pendulum, fine; or if you want to look at a ring or a knuckle, or anything ... it doesn't matter what you look at. Just keep on looking at the spot for a while until your eyes get tired, and then you can let your eyelids close. So as you look at the spot, let yourself relax deeply, and then if you wish, you can repeat mentally the phrase, "Relax deeply ... relax deeply ... relax deeply." Breathing deeply and easily, letting the muscles relax more and more, then repeating mentally the phrases, "As I relax deeply, I can go to a deep stage of concentration ... I won't be asleep, I can be aware ... I can use these techniques in my own style and in my own way, so that I can relax more deeply ... concentrate more deeply ... and gain more information about my UFO experience... Later on, when I return to the normal state ... I can feel wide awake, alert, and refreshed... I'll be able to feel good... I'll be able to understand more about this experience... Right now, being able to go deeper and deeper ... faster and faster." OK, just letting the muscles relax more and more. If you haven't closed your eyes already, just close your eyes, and mentally look at parts of your body as if you could mentally see the toes and feet, the ankles and calves, the knees and things, hips, the torso. Just as if you could look throughout the body and see the bones and ligaments, the organs, the systems, the muscles and the skin. Then, mentally, looking at your toes and feet, watch them relax more and more. And then just repeat to yourself mentally the phrase, "Toes and feet ... relax." Then, watching your ankles and calves, let them relax more and more, repeating mentally the phrase, "Ankles and calves ... relax; knees and thighs ... relax; hands and wrists ... relax; arms and shoulders ... relax; hips and torso ... relax; neck and head ... relax. Letting the entire body ... relax deeper and deeper ... faster and faster." OK, now you can continue to breathe deeply and easily... Just let yourself go deeper and deeper. If you want to, think about a place that is comfortable and relaxed ... a place that is attractive to you ... if you like to go there. Maybe it's a grove of trees, a lake--someplace that is comfortable and pleasant. Just see yourself drifting there. If you like to float, you can float there; or if you like to feel heavy and relaxed, just see yourself lying down, heavy and relaxed. Feel yourself going deeper and deeper, faster and faster. (Long pause.) OK, as you relax

in that deep comfortable place, then, whenever you are ready, you can indicate, if you want to, you can just nod your head or you can just say "yes"... Just indicate whenever you are ready to acknowledge that your body is not only relaxed but ready to go back in memory--to get more information that's available to you. Are you ready to do that? OK, fine. You can still keep this deep comfortable relaxed position, but you'll be able to go back in memory and get more information about the experience... You'll be able to understand it and evaluate it, so that, even if the feelings are bothersome to you, you'll be able to tolerate them. And as you learn more about the experience, you'll come to understand it better; you'll be able to "fix it" so that it makes sense to you; you'll be able to understand it, you'll be able to integrate it into your life better. In your mind's eye, just see yourself going back to that Friday--that Friday, October 25. Just see yourself going back to that experience ... going back to the time you were driving the pickup ... going down into that area ... see yourself getting out of the pickup with your rifle ... see yourself going down over the crest and looking at the elk. Whenever you're ready, you can just talk ... describe your reactions. Focus on the things that were puzzling to you, or focus on the things that were interesting to you. Relax as deeply as you can and just mentally go back over that experience. You'll be able to describe it and tell yourself what was happening at the time. Whenever you are ready, just go right ahead.

CH The elk in the clearing. (Pause--puzzled.) The bullet didn't get there.

LS It was puzzling that the bullet didn't get there?

CH It hit something... I picked it up.

LS You went over and picked it up?

CH I picked it up and <u>then</u> I heard somebody behind me. <u>Then</u> the cubicle.

LS Did you see yourself going into the cubicle? Or did you just suddenly find yourself in the cubicle?

CH No. Just inside. The beacon. It's too bright ... hurts the eyes. He's got the gun. (Pause.)

LS You saw just one, who had the gun?

CH One.

LS Did you see anybody else?

CH No. [Inaudible.] Somebody else. They're comin' after food. Explorin'. Mostly food.

LS Did they say what their food it... What it is like?

CH Meat. Concentrated food's not enough. Other people ... like me ... experiments. Bright lights. Landin' down ... some other people. I'm dizzy. (Rubbing his eyes.)

LS Lights bright in your eyes?

CH They hurt. (Eyes watering.)

LS Want something to wipe them with? Anyone have a Kleenex? Here's one. Feeling the shoulder again ... the neck?

CH Yeah. I got a knot there.

LS Can you tell what it refers to? Can you think in terms of something happening at that time?

CH No, really, I can't. (Eyes opened; Carl seems bothered and uncomfortable.)

LS Do you want to go back into it, and see if we can figure something out? Maybe we can give you some relief for the muscle. See if you can relax yourself a bit more, and see if you can go back without experiencing too much discomfort. Tell yourself that you will be able to go back to that experience, but you will be able to avoid the discomfort. OK, now, just close your eyes again, and see yourself right back in that cubicle... Going back and back to that experience, but being able to avoid too much discomfort. You need to push the discomfort off to one side--put a little distance between you and the discomfort. Now, see yourself back in that cubicle. What was happening when you were landing down? Something happened at that time that was bothersome. If it was bothersome, think

of it as something that happened on a screen, in a movie... Put a little distance between you and you'll be able to see what it was. Did something happen that was unusual, or...

CH It didn't touch the ground.

LS You'll be able to relax that shoulder, you'll be able to relax that neck, you'll be able to relax the body. Deeper and deeper, more relaxation... So the cubicle didn't touch down? But it hovered there, or what happened to it?

CH They stopped. They dropped me out. My shoulder and my neck... When I hit the ground, I slipped, rolled ... my shoulder... (Rubbing neck and shoulder.)

LS OK, now you're past that, now you don't have to feel that pain. You're past the fall. So you slipped and fell? They dropped you? You hurt your shoulder and your neck?

CH My neck.

LS Uh huh. What happened then?

CH I started down the road. Oh-h-h! (Groaning and rubbing his neck.)

LS Now, you'll be able to ease the pain ... you'll be able to ease the discomfort. So, you started walking down the road?

CH Yeah, I seen the pickup. I walked past the pickup. (Pause.)

LS Then what happened?

CH I walked a long ways, maybe a mile, past the pickup. Nothin' down there 'cept bad roads. I come back. Got in the pickup.

LS OK, you got in the pickup and then what?

CH This lady's talkin': John Clark [?]. Then I tried to call ... no answer. Then, Roy, talkin' to Roy.

LS Your neck is still hurting you?

CH No, it don't feel bad now.

LS There for a while it was really feeling the same kind of hurt you felt before? Did you remember that you had fallen down?

CH No.

LS The chiropractor had thought maybe you had?

CH Yeah, he said it looked like somebody had hit me over the head with a tree!

LS Yeah, uh huh.

MH When he called in and talked to Roy, he said somethin' about fallin' on some boulders. They couldn't figure out what it was all about ... somethin' about a bunch of boulders fallin'.

CH Oh-h-h! (Softly moaning and turning his head.)

LS Yeah. Anything else you noticed? Could you get an impression of those events? The feelings that you experienced?

CH Well, not really. It seemed that there was more people up there besides just what was in the capsule. You know, the machine, or whatever you want to call that kind of contraption.

LS Yeah.

CH I can't recall no... You know, I see ... then I could see some other people, but they weren't like the people, you know, that went up there. They were just like us; but I don't know how many ... just a group.

RK You mentioned "more people in experiments--people like me." (Pause.)

CH Yeah, there was four or five other people like me.

LS Could you see what was happening?

CH No, they was just standin' there. They wasn't ... the light didn't seem to hurt them.

LS Were they adults... Were they older people, younger people?

CH Two kids and three adults. [M]

LS What did they look like? Did they have dark hair? Light hair?

CH He was grey-headed ... one.

LS How about the youngsters?

CH Blonde, brown hair; one was blonde, one was brown.

LS Now, did they have dark skins, or light skins?

CH Medium.

LS Did you get an idea of how young or how old the kids were? Were they six years old or twelve, or...

CH Brown haired, about ten or eleven; blonde, thirteen or fourteen.

LS Could you get an idea of whether they were male or female?

CH Female. Then there was a young boy ... oh, seventeen or eighteen, and a young girl, oh, seventeen-eighteen; brown- and blonde-headed.

LS And did they seem to ... did they seem to be part of the crew, or did they seem to be part of an experiment?

CH They were by themselves.

LS They were dressed in everyday clothes?

CH Yeah.

LS Now, when did this seem to take place? Was that when you felt like you were on the other planet, and touched down and landed?

CH Yeah.

LS Did these people seem to be surprised or puzzled or afraid?

CH No.

LS Did they seem to be happy or pleasant? (Pause.) Could you see anybody else with the same look as the pilots of the cubicle?

CH No.

LS You didn't see anybody else? Can you remember anything else they said to you besides food? They were looking for food ... they were looking for exploring... They said they were going to travel a hundred and sixty-three thousand miles? What else did they say?

CH A hundred and sixty-three thousand miles.

LS A hundred and sixty-three thousand miles?

CH Light miles.

LS Light miles. OK. Did they say anything else to you?

CH Different sun.

LS Different sun ... they said they had a different sun?

CH Different sun. 'Cause our sun burnt them... That's the reason for the black suits, and standin' in the shade ... Cloudy days not bad.

LS Hum. Did they say anything about the experiments...? Why they were being conducted?

CH No.

LS Did they say anything about the emblem on their belt? What that meant?

CH Starship.

LS Starship. How about the cloud. Did they say anything about that?

CH Shape of planet; map--ground of planet. [H]

LS Shape of the ground on the planet?

CH On the planet.

LS So that it was a symbol of their planet? A picture of their planet?

CH A picture of the ground ... the planet ... surrounded by yellow water.

LS Continent? Was that a shape ... the picture of the continent?

CH No. They said the map of the ground.

LS Map of ground.

CH On their planet, surrounded by yellow water.

LS On their planet, surrounded by yellow water, yeah. Did they say anything about the kind of government ... the kind of civilization they had, or what kind of life they have there?

CH No.

LS Did they say anything about their communication? Could you see their lips move when they talked?

CH Yes. (Pause.) The gravity-levitation moved stuff for 'em.

LS Gravity-levitation moved things. Did they say this as well as doing... ?

CH With this thing from hand.

LS Did they call that anything? Did they have a name for that extension on their arms?

CH Gun.

LS They called it a gun? Were there any names that they gave? Did they call each other by names?

CH Ausso One ... I talked to him.

LS What was the name?

CH Ausso One.

LS Ausso One? Kinda like Ausso--Ozzo? Ausso One, as if he were the number one?

CH Yeah.

LS Number One. Ausso One. You talked with him. Did he ... seem like he was a male, or did it seem like she was a female?

CH I'd say male.

LS Did he talk about anyone else? Did he give a name? Did they say anything about their communications system? How they communicated with other ships and the star fleet? Did they talk about other things ... things like money, or time, or age?

CH No.

LS Could you get any idea of how old Ausso, was ... Ausso One was?

CH Oh, like our features, about 35, maybe 40.

LS Hum. Now, what did he look like as far as his features? How tall, and how much did he weigh, etc. ?

CH My height, maybe a little higher, and about one eighty-five, one ninety-five pounds.

LS Let's see, you're six-one, or... ?

CH Six foot.

LS OK, so he would be about six-one, and about one eighty-five to one ninety-five pounds? Did you see any hands? Couldn't see any hands, is that right?

CH No hands.

LS No hands, but you could see the lips and eyes?

CH Nose.

LS Nose.

CH No eyebrows. [H]

LS No eyebrows.

LS Couldn't see any ears?

CH No.

LS Was there anything covering the sides of the head, or you just couldn't see?

CH Couldn't see.

LS And it looked like special kind of hair, or something coming up?

CH Just like wheat straw.

LS Wheat straw sticking up from the head? Did he have anything to say about whether you would feel anything different? Or did he suggest anything to you about what would happen to you when you got back to earth?

CH No. He said I should be all right.

LS Should be all right.

CH Shouldn't be hurt in any way.

LS Did you notice anything else about the uniform besides the bands and the emblem, and the little lap covering?

CH No.

LS Anything about the material ... what it looked like?

CH Kinda glossy and black, like rubbery ... kinda like a vinyl... But you can't get too close.

LS Can't get too close to them?

CH To see it. They won't let you.

LS They didn't want you to get too close?

CH No.

LS Did they ever talk to one another about what kind of experiments they had done with other people?

CH No.

LS Was anything ever used to go over your body ... to look at your body? As if, you know, some kind of X-ray device or something?

CH No. Just the helmet.

LS Just the helmet. What did the helmet look like?

CH Oh-h-h, not like a football helmet, and yet it was, except for the wires. Nothing in the front.

LS How many wires?

CH Six. Two from the top, two from each side, going to the back.

LS And the helmet was put on you when you were in the chair?

CH In the chair.

LS Uh huh [indicates an affirmative response]; did you have any feeling when the helmet was put on?

CH No.

LS Did they say anything about what the helmet was for?

CH Take readings, pressures.

LS And did they say what kind of readings, pressures, they found?

CH No.

LS Did you see any kind of dials, or any kind of screen on which readings were shown?

CH No.

LS Later, when you felt the pressure on the top of your head, did you associate that with the helmet? Did it seem like that was connected?

CH No.

LS OK, how about looking over to the levers. What was it that you were seeing in the cubicle? What did they look like?

CH The first one: automatic transmission ... more like a sports car. Second one, the same; the third one, mostly the same, but it had letters on each end.

LS Ten letters? You said it seemed to have ten letters?

CH It had letters on each end. E

LS Oh, letters on each end.

CH E. P. H. D. on the top; D. H. E. P. on the bottom.

LS E. P. H. D. on top, and D. H. E. P. on the bottom. Anything said about what that meant?

CH No.

LS What impression did you have? Did it suggest some kind of propulsion system, or... ?

CH No. They traveled by magnetic force.

LS This is what they said to you?

CH Yeah. As fast as they want to travel.

LS Did they say where they had traveled besides on this trip? Did they tell about any other trips?

CH No.

LS That second lever, you said, looked like an automatic transmission lever on a sports car. Could you see how far the lever would move?

CH Well...

LS Would it move several inches, or...?

CH Three or four inches down, four inches up. But it never moved while we was on the trip. It stayed in the center.

LS Did you see any of the levers move at all?

CH The first one. It moved down. Don't remember it ever movin' again.

LS And that was when this Ausso One pointed toward it? Then it moved down?

CH Moved down.

LS And that's when you had the feeling of leaving?

CH Uh huh.

LS It wasn't a sudden jolt?

CH No.

LS A gradual...?

CH Gradual, just like you'd be in an automatic car ... just take off.

LS Take off; uh huh. Then it was shortly after that you had the feeling of seeing the globe ... the Earth?

CH Yes, uh huh.

LS Did your head hurt at that time?

CH No.

LS Uh huh; didn't feel any discomfort when you took off?

CH No.

LS And when you got to that other place, did they land at that other place?

CH Landed.

LS And were you still in the cubicle?

CH Stayed in it.

LS Stayed in it. Did they leave, or did Ausso One leave?

CH No.

LS He stayed there, too, huh? Did he talk with anybody during that time?

CH This other one left. He said somethin' now, but I couldn't make out what it was, and then he left. But he just disappeared ... he didn't walk.

LS He just disappeared, huh?

CH He just, "Poof!"

LS Gone, huh? Can you estimate how long you stayed there?

CH I don't know; just ten, maybe fifteen minutes.

LS Is this when the lights were so bright?

CH They were <u>real</u> bright!

LS Did it seem like the lights came from the cubicle, or could you see through the cubicle?

CH No, they came from this "spiral deal" out in the middle ... like a plaza.

LS Uh huh.

CH Only it was high.

LS And then this needle-like, or this rotating... ?

CH Yeah, the light rotating high.

LS Could you get an idea of how high it was, how tall it was?

CH Eighty or ninety feet.

LS And did Ausso One talk about that? Did he tell you what it was?

CH No. They're lights, is all.

LS Did you have a feeling that it was a communication center, or...

CH No, more like an airport, maybe.

LS Did you see other cubicles around?

CH No.

LS Did you hear any communication, you know, like over a radio ... other people talking?

CH No. No other sounds. (Pause.) "Er-r-r" sounds, something like an electric razor, or louder.

LS Something like a loud electric motor ... loud electric hum?

CH Yeah.

LS More of a hum than any other kind of sound?

CH More like a hum than it was... (Pause.)

LS Yeah, and then about that time, the lights were so bright, it was hurting your eyes. Did you feel any other discomfort besides the eyes?

CH No, just the eyes.

LS Just the eyes. Just because the lights were so bright? Did you have your hands over your face at that time then?

CH Yes.

LS And they said...

CH All they said was, "We'll take you back, you're not any good."

LS You're not any good, huh? Did he say why he said that?

CH No. He just said, "We'll take you back; you're not any good for what we need."

LS Did you have any idea about what he meant by that?

CH No. (Pause.) Then we left.

LS Did he point to the same lever again? When you left, can you remember?

CH The lever went up.

LS The lever went up. Whereas before, it had gone down?

CH Yeah.

LS Yeah.

CH I think maybe forward and reverse.

LS Yeah. Uh huh. Can you remember if you had pills with you at that time?

CH No. He took the pills.

LS He took the pills before you left?

CH Yeah, after he said, "You're not any good for what we want. We'll take you back." It wasn't the light.

LS It wasn't the light that was causing the difficulty?

CH No. He said ... they said, "I wasn't any good for what they needed."

LS So then he took the pills right then?

CH No. This ... they just floated away. He just pointed and they just floated out of my pocket.

LS Hum.

CH Not any good...

LS Not any good for what they needed? But he didn't say what they needed?

CH No.

LS And that's when you were going to come back?

LS Did he say what... What did he say when he said he was going to take you back?

CH He says, "You're not any good for what we need; you'd get used to the light. So we'll take you back."

LS Did he say where he'd take you back?

CH No. He just said, "We're going to take you back."

LS OK, did he say anything to you about whether they might come back to that same area again, or look around some more?

CH They'll be back!

LS Uh huh; will they be trying to find other people, or will they be in touch with you?

CH No, not me!

LS No, thanks, huh?

CH They want some younger people.

LS Uh huh, did they say why they wanted younger people?

CH No.

LS But you could tell, that's why they had other younger people there ... that they were looking for?

CH Yeah. All but for the one grey-headed man.

LS Did they say anything about him? Had you seen him before?

CH Maybe. He looked familiar.

LS As if you had seen him before? Maybe around here, or... ?

CH Yeah, or maybe on TV.

LS OK, now why don't you just relax deeply. Let your mind and body relax deeply. Just drift back to a time when you may have seen that grey-haired man. (Long pause.) Do you get the impression of when you might have...

CH Unknown.

LS Unknown, or you did know him?

CH I think, on TV.

LS On TV?

CH Sunday nights.

LS Oh, The Unknown, the TV program on Sunday nights?

CH Yeah. This grey-headed fella. Short ... well, maybe not ... he's kinda fat... Sittin' in the chair, he looked fat.

LS Now, this wasn't the announcer, who's dark-haired? This was somebody who was being interviewed?

CH Yeah, they interviewed. And there was this lady, grey-headed lady.

LS On the same program. Was this on UFOs?

CH He says, "They put us down here for punishment; they're going to come and take us back."

LS Yeah, and he was a man who had written a book about this? He's been in Southern California?

CH Yeah.

LS And there was a man who was on this same program, an astronomer, who was asking this man questions?

CH Where this planet was is where we was supposed to go to.

LS Does it seem like that grey-haired man was similar, or does it seem like he was the same man?

CH It seemed like he was the same man.

LS Let's see, I have a copy of the book that that man was talking about, saying that the Earth was like a prison. Are you getting tired? Do you want to stop?

CH No.

LS OK, let's just take a few more minutes, and then we will let you relax deeply and you'll come back feeling good. But for now, let's take a couple more minutes and see ... is there anything that you can think of that seemed to stand out and seemed important for you to remember?

CH He give me my gun back ... Ausso One ... pretty good guy.

LS OK guy. He gave back the gun? When? Before you fell out of the cubicle?

CH No, I didn't really fall. They just put me down ... gliding down and stopped, and then I slipped.

LS Oh, I see. You glided down.

CH Yeah, then the ground was kinda rocky and then I slipped.

LS So that was when you were already down and then you slipped?

CH The fingerprint! My thumb! (Holding up his hand.)

LS Oh, yeah, that's the thumb. When you slipped, your thumb hit the spot, or the lens. OK, so you slipped and rolled; your right thumb touched the lens, huh?

CH The front lens and the butt of the gun just scratches where it hit the rock.

LS Yeah, that makes sense. And that's when you hurt your shoulder and neck? OK, now why don't you just let that neck and shoulder relax. Tell yourself that you can be past that pain. That you can remember those events, any time that you want to remember those events; you won't have to remember the pain, unless

it's important to you for some reason--to remember the pain--in case it would be helpful to you to assist your body. But otherwise, you can let the pain and the hurt go away. You will be able to remember the events; in fact, more and more, whenever you want to you will be able to recall other information if you wish. The information will be interesting, it could be helpful to you. You'll be able to understand the significance of this; that it happened; that it's OK that it happened. You wouldn't necessarily want to repeat the events, but, at the same time, the events were interesting. You could learn something more about yourself, learn something more about these experiences. You'll be able to deal with it and it will be OK. It will be a good memory rather than a bad memory. OK, anything else that you remember?

CH No.

LS OK. Knowing that later on you can always come back to this deep concentration, this deep relaxation, if you wish to, and knowing that you can learn more about the experiences; right now, just indicate to yourself that whenever you do wish to go back, you can do so by yourself, or if you want to with me or somebody else, you'll be able to, whenever you want to. Right now, start returning to the normal state. When you return to the normal state, you can feel wide awake, alert and refreshed, you can feel fine and you can feel good. The entire body can feel fine. Have a good memory of the events, have a good feeling about the events. Having a better understanding of the events, what happened, and how you reacted. Knowing that it was something that happened to you, and that it wasn't a lapse of memory, it wasn't bad judgment, it wasn't something that went wrong. It was something that happened; you can come to a better understanding of it, and it is going to be a good memory to the extent that you want it to be a good memory. It can be something that can be of significant meaning in your life and you can learn more about it whenever you wish. OK, returning to the normal state. I'll just count from one to five and on the count of five you will feel wide awake, alert, refreshed, and feeling fine, feeling good. OK, counting from one ... two ... three ... coming more and toward the normal state ... four ... five ... wide awake and feeling fine.

CH (Sigh.) I don't know. (Sighing and opening his eyes.)

LS (Discussion about the football game with Carl's son: state championship game between Rawlins High School and Cheyenne High School.)

RK Now, what do I need to do with him? (Referring to drawing of "Ausso One.")

CH Not any too much.

RK How about the nose? Is it turned up too much?

CH No.

RK OK, and how about the lips coming down? Does it protrude out here maybe a little bit more?

CH No. It just like he's, this is just back in his head.

RK You mentioned pretty smooth skin. Are there any wrinkle lines at all?

CH No.

RK Cheek definitions ... like maybe he had a cheek? Like maybe like this with a cheek here with his mouth...

CH Yeah, maybe. Most all I seen was straight in the front. Anytime he had any dealings with me, it was looking right straight at me. I never seen his back--what their backside looked like, you know.

RK What about their eye color? Do you have any ideas?

CH Kind of a yellow, like on the outside. And on the inside was kind of a dark color. I can't really recall anything ... maybe a dark brown and the outside was kind of a yellowish.

RK OK, I'll work him up.

LS Very good. Did that make sense to you? Now you were able to fill in some more things. Of course, there are still some things that are hard to understand because the events themselves are so unusual; but on the other hand, there are some things that came to me

... that now you remember that you slipped on the ground. That the right thumb touched the lens, which makes sense. Also, you remembered getting the gun back. You remembered the pills just floating out, you know, when he said, "OK, you are not the one." Well then, that's what happened to them. You know, I was wondering ... the pills seemed to be pretty important to you, when you were in the hospital. I was wondering, do you recollect feeling any different after taking the pill?

CH Well, you know, they were kinda relaxing.

LS I'll bet the possibility is that...

CH You know, I'd been walkin' there Wednesday and Thursday... I was probably tired. Maybe that's the reason I've been sleeping so much.

MH He only had one sandwich to eat that whole day, until they got to him. He had a full lunch, and then the Sheriff gave him a sandwich and a cup of coffee when he got to him. Other than that, that's all.

RK Do you remember any [inaudible] sensation at all involved with those pills?

CH No, other than just maybe they hypnotized me, I don't know. You just relaxed, you know... Maybe there was a relaxing agent along with it. But I do recollect them saying something about the food, that's what they're after mostly, is food.

LS And they were also talking about meat as food. Did they say anything about the elk?

CH No.

LS They didn't say anything else about meat?

RK Eating concentrated food would indicate a reason for the lack of a jaw, definitely, without any mandible muscles at all. ▣ And the cheek muscles here are not predominant... They would have to curve back to the ears ... or back to the "no-ears." (Laughter.)

CH I was looking straight into the face all the time; you

know, you never get a side view. If they wanted to communicate with them, you was looking straight into them. You never looked to the side or the back; there was just a straight front view was all you ever got, so I really couldn't say whether there was any predominance showing from the back.

RK Did they have any kind of coloration in the shoes or were the shoes separate from the uniform or were they... ?

CH They were black.

RK Were they separate?

CH Well, you know the old pajama suit, well I wouldn't call them old, 'cause I guess kids still wear them. They were a sock, pajama and all together.

MH One thing we didn't ask, is that those two guys that kind of diverted him, if they had anything to do with it.

CH No, I don't hardly think so. Their truck had died, and I helped them get it started. The battery wasn't dead; the wires were going down to the solenoid from the battery that was broke, and we had to hold it together to get it started.

LS These were the guys you were talking about at the interview?

CH Yeah, they'd stopped me. See, I was going to McCarty Canyon to go hunting. And then instead of going to McCarty Canyon, I went down to the National Forest, which is in Area Fifteen instead of Area Twenty-one, so I wouldn't think they'd have anything to do with it. (Pause.) This one guy in this book you was talking about, what's the name of that?

LS It's called, let's see, I can see the picture of it. There is a picture of a rocket ... something about eternity [Passport to Eternity, by Lawrence W. Foreman]. I can't think of the man's name, but I remember buying a copy of the book. He claims that he, on several occasions, has gone out into the desert and has seen a flying saucer and has been approached by occupants; and that they have talked with him and told him various things. He seems to be...

CH Did he say anything about being taken up?

LS I don't recall... Yeah, I believe he did say that he'd been taken elsewhere, but I don't know whether it was to another place or whether it was just on board, you know, and transported around.

RK Doctor Sprinkle, there is another woman in town who was taken aboard a craft last year about the same time, and she ended up in the hospital in Cheyenne. The event wasn't too well published, obviously, because she thought she was completely off her rocker. Oh, God, the descriptions... !

LS Similar?

RK Exact!

LS Hm!

RK She only lives four blocks, five blocks, from here. She was between here and Laramie, by the Medicine Bow Forest when it happened.

CH This was probably in Lincoln Park, somewhere up in there.

RK She had a two-day lapse. She couldn't have existed out in the country in this particular temperature unless she had been somewhere else. One thing that they did do to her: they removed the false teeth before they took her aboard the craft. For some reason, they didn't want plastics on board at all.

CH They didn't take mine. I still got mine. Here lately I been takin' 'em out and leavin' 'em out for, you know, maybe a whole day, but they hurt, up here.

RK I was just wondering if there wasn't a similarity, that's why I asked him the question. That's a separate case, but they took her to a planet and they left her there for a while, and they were doing "emotional experiments." Testing her capacity for love, for example, and human emotional responses.

CH Well, now, this deal nine years ago ... you see, I was, I had this "vasterectomy" and I was wondering if that was the reason that I wasn't any good.

LS Hm! That's a good question.

RK But I noticed that when you were talking the experiments, it looked like you had an irritation on your lip. I'm watching your muscular contractions and stuff, and then your wrinkles become real deepset in your head and your veins come out at the side of the head; and you shifted your lip a little bit and continued talking. It was like this was irritating you. That's why I brought that up.

CH It's sore right up in here, and that's the reason I been takin' my teeth out. I left 'em out all day yesterday, in fact. In fact, my boss asked me yesterday, he says, "You have some teeth pulled?" I says, "No, I got false teeth." He didn't know that! I've worked for him for I don't know how long, twenty months or so? Bob Rosaker said, "You had some teeth pulled?" I said, "No. I've always had a plate." He said, "I didn't know that!"

LS It's interesting that when you were going back, you were able to remember the little things like the rifle, the slipping and falling, and so forth. But it still seems as if there's not much information about what happened there... As if they didn't want you to have much information, or as if you didn't have any other experience than just sitting there.

CH No, I've often tole 'em ... we've seen these lights, like I told you before, and I always told Marge that I'd like ... that if I ever got close enough, I'd go with 'em and find out what they were doin'. But other than that ... it just, you know, I just didn't have any more questions to ask maybe ... to get any results. I can't say why a guy could remember. But a little thing like a rifle--I just bought that rifle, by the way, and I'm kinda proud of it, you know. (Laughter.) (Discussion with his son.)

Rel Well, did they take your elk or deer off up there, or you don't know, or...

CH No.

RK Were the elk with you on the return trip...? That enters my mind.

CH No. I really don't think they were. Now I really don't know for a fact that they weren't; but I just, whenever they said food, I just assumed they took them off.

RK During the hypnotic state, your eyes dilated ... very well. Look at the redness on the outside compared to the inside. They're getting back to normal now. The veins stuck out... It looks like if they're talking about coming down and landing, you had a compaction and you had [inaudible] type pressure against you, because everything that you shifted, even moving your head, was more of an effort. I wrote that down three different places in the questioning.

CH Well, I don't think they'll bother me no more, and I kinda hope they won't!

LS It's kinda nice to know! [Laughter.]

RK If a vasectomy is the answer ... well!

CH Well, that's the only thing that can come to my mind ... that that would be what they would want. 'Course as far as working ability, you can ask anybody I've ever worked for; I work just as hard as anybody else ever works. I've even had bosses say that I do my hands' work when they should be doin' it.

MH Could it be that your brain is, you know, you don't sway easily... You got too bright of a mind for what they would like?

CH No, I doubt that very seriously.

MH You know, somebody can tell you to do something and if you don't want to do it, you'll tell them you're goin' to do it, but you ain't goin' to do it.

CH I wouldn't know, but the only thing... You know, before, I figured that the reason that they brought me back was the lights, but that's not what it was. It was somethin' that I could do, that I couldn't do, you know somethin' that I should be able to do that I couldn't do. The way I gathered the experience and the whole thing comes to mind would be a "vasterectomy," now, "vastectomy," or however you want to pronounce the word.

LS Did you notice whenever lips were moving, could you see any teeth or any tongue, or anything like that?

CH They had three teeth, that's all.

LS Three teeth. Hm-m-m.

CH Predominant--three teeth in front--big. Three on top and three on the bottom. They're wide-like. Their mouths are not overly big for size, you know ... it's just normal, but the three teeth. They didn't move their mouths real wide when they talked, like ... but there was no difference in the color, I don't believe, from the inside of their mouths to the outside. It was like all the same color--kinda like a yellow jaundice. Like a dark complexioned person that has yellow jaundice, you know, the coloring on their face. Seems to me like the inside of their lips were about the same. Seems to me there was no difference in the color, like it'd be red or different color on the inside, they were all about the same color.

LS Hum. Interesting. Had you remembered before that there were six teeth? Or just remembered as a result of going back in memory?

CH Yeah ... going back and talking to him while we were still... I never got outside the cubicle... I was still inside the cubicle all the time. In other words, up there, I didn't get outside, I was still inside.

MH What gets me, is how could you see, because the light was so intense.

RK The point of asking the question earlier, on the total awareness, awareness of surroundings; I'm not sure whether you're not getting some mental pictures in this, too. I definitely thought that during the questions.

LS Hm-m-m. Yeah, I was wondering, you know the pendulum technique. How was it: we asked the question about, "Was there some kind of ESP experience?" "No." "Was there total awareness?" "Yes." And then "I don't want to say." Was there some kind of awareness that you had? So that being in that, well, if there was a compression, was there also some kind of an atmosphere or condition in which you felt that you

could sense what was going on around you, regardless of whether you were looking at it with your eyes?

CH It was kind of like, well, I really can't say it. It's hard to describe. It's just a feeling that everything was there that I'd seen outside, more or less. I really think I did see the elk in the cage, and I didn't see them. I really can't picture exactly how I come in contact, unless it has somethin' to do with this helmet I had on. But he said that was for pressures and tests; I guess it wasn't anything to do with ESP or anything like that.

MH Do you remember seeing any other people up there?

CH Yeah, there was five of them. Just like the elk--there was five. But the elk, there was a bull, four cows; and the people, there was a little boy--no, there was two little girls, and an old man, and a young boy and a young girl--teenagers. They were down underneath the cubicle ... underneath this pinnacle, or whatever it is ... light.

LS Oh, revolving light. Was it kind of like a globe?

CH No, it was shaped like a Christmas tree light--big at the bottom and small at the top.

LS Do you think you could give us a sketch of it.

CH Yeah, it was like ... it was settin' on there and come up like this ... and back down. But this was striped in different-colored lights all through it.

LS Hm-m-m. And revolving? Did you have a feeling of things coming out of it?

CH Flashing. You know, lights flying around like this ... like an airport light.

LS And they were standing near it or underneath it?

CH Yeah, they were underneath it. They were standing down on the left-hand side. There was a building, and they were standing down this side of the building. We were settin' out here in a cubicle.

RK Do you have any idea what color of sky?

CH No. All the light took up everything. You couldn't see through it. It was like a flash of lights all the time. And the only thing ... maybe the only reason I seen all these people there was because they were underneath the light. You could see them down below, but if you looked up, why, the lights were intense and you couldn't see nothin'. How I could see this guy from that distance and relate him to this guy from The Unknown, I really can't say.

RK He just had a familiarity?

CH Yeah.

LS How far away did you think you were from the beacon?

CH About sixty or seventy feet from the beacon. (Pause.) And I did see some sides. So these people didn't belong there. They were, you know, side views... You could see the dominant chin instead of being just flat. Especially the two little kids... They were standing to the side. All I seen was the side view of them. But they were talking amongst themselves, the five of them, about something... I don't know what it was, because, you know, they kept looking back and forth at each other, uh, just like a group conversation. (Pause.)

LS And when you came back, did you have the feeling that there were others besides this one, Ausso One?

CH No. He was the only one aboard. If I can remember correctly, he was the one I can remember seeing on board.

LS You only saw Ausso One, yeah.

MH Well, did he push you out or just let you out, or...

CH No. He just floated me down, like you jump out of a tree and instead of falling, you just kinda float down.

MH Then they still weren't trying to harm you then?

CH No, I don't think there was any harmful intent whatsoever. (Pause.)

LS Most interesting! Can you feel any difference about the neck and shoulders now? Does it feel any different than it did?

CH No. It doesn't bother me now, like it did before.

LS Yeah. It was as if you were kinda going back through the feeling again, yeah. One suggestion, if you do find yourself remembering any of these events--you know, if you can write them down or talk with Rick about it.

RK You could call me and then I could record it over the phone.

LS If you get a new feeling; if anything comes up that is bothersome, you know, once you have gotten the information out, then just put yourself into a different place. Say, "OK, now I've gone through it, now this is just the memory of it." Like you did there, you know, you had the knot and the feeling out, and then you got past it and then suddenly it went away. It is like the body is going through that experience again, so that some of the same things happen. Well, after a while, you shouldn't have any kind of reaction that should be bothersome to you.

CH Where did Bob go?

LS He had to head back home, I guess. He said goodbye, when you were still on your "trip." (Laughter.)

CH He saw the weather out there, and I don't think he liked the looks of it.

LS Would you be willing to let me take a photograph of the family and you?

CH Yeah, sure.

LS OK. I'd like to do so.

Here ended the tape-recorded portion of the interview. Photographs were taken, and arrangements were made for another interview.

INTERVIEW WITH CARL HIGDON
SUNDAY, NOVEMBER 17, 1974
(Transcript reproduced here by permission)

The interview was conducted in the home of Mr. and Mrs. Carl Higdon, from 11:30 a.m. to 1:00 p.m. Those present included Carl and Margery Higdon, their children, Mrs. Marilyn James, Rick Kenyon, and Leo Sprinkle. Hypnotic procedures were used with Carl to obtain further information about his experience. Comments from Carl indicated that his experience included these events: exit from the "cubicle" and entrance into a "tower," along a hallway into a large room; an examination (?) before a large "shield"; return to the cubicle, after being told by his guide that he was "not what they needed"; return to the pickup, which was located several miles from its original location. The information obtained is consistent with the basic story, although many questions arise about the purposes and powers of the alleged UFO occupant.

CH I don't know what they mean by "super blood"; I guess it is better than normal.

LS Right!

CH I haven't got ahold of the doctor yet--I want to find out for sure. He said there were no spots whatsoever on my lungs.

LS This was Dr. Tongco? There had been spots earlier?

CH Yes, in nineteen seventy. In nineteen fifty-eight, they put me in the hospital and said I had TB. Then they found out it came out negative. Nothing to it. They told me to get an X-ray every six months. So when I was in Kimball, I was getting X-ray every six months. Up to nineteen seventy, there were still spots.

LS Did they say what they were?

CH Scar tissue. The last X-rays I got were in nineteen seventy-one. When did we go to Byers? Maybe it was nineteen seventy or seventy-one, the last X-rays I got. I still had spots on my lungs then, but there is none on it now.

LS Now, after this last X-ray, nothing... ?

MH I didn't talk to him yet. He didn't say there wasn't any, he just said, when I asked about if he could be anemic, he just said his blood is better than normal, and he said his chest X-rays were OK.

CH The first thing they say, if they see spots, they'll ask you about them.

MH They will start testing right away.

LS Right!

MH Anyway, the hospital is being sued right now, because they wouldn't admit a drunk, and the doctor has been kind of indisposed for the last couple of days.

LS Did Roy Fleming tell you that he called me? Did Rick tell you that a guy called me who said he was Roy Fleming?

CH I was working the last three days and he didn't say anything about it.

LS Well, a man said that his name was Roy Fleming; he said, "Do you know who I am?" I said, "Yes, because I talked with Carl Higdon." He told me that his supervisors had talked with him; one man said that he was interested in the case and wanted to know if it would be possible to get some kind of copy of the recording. I said I had no objections if Rick Kenyon and Carl Higdon had no objections. I said, however, that I felt that they should have a say in it. He said that he had been interested in the case. Also, he said, "It's not that I don't believe him, but there is some question about what actually went on." Then I said, "Carl has a copy of the recording, also." He said, "Oh, is that right?" Then he didn't say much more. And I haven't heard from him any more.

CH I think it is this old boy right here. (Showing a letter written to Carl Higdon from LeVesque.)

LS UFO Newsletter, Pyramid; I'm familiar with those publications; so, it could be that he is supplying information for these groups. Although if it is the same person, I don't like the idea of someone giving a name...

CH Yeah.

LS It is interesting.

RK Whoever he was, he is well enough versed to know that I was involved and Leo was involved.

CH Well, I don't know why Roy would call...

RK Roy would drive up to my house.

CH I talked to Roy here one evening... I told him just as quick as I got all this stuff together that I would give it to him. That has been two weeks ago. He was welcome to read everything that went on, the tapes, too.

MH If they ever call again like that, just tell them they can come down to the house and listen to them. If that is them, OK; if not...

RK I'd have them meet me in a certain place!

LS I brought the rough draft of the typescript. We have two secretaries. One was ill this past week, so I wasn't able to get it in the final form. I brought his [Rick Kenyon's] copies.

RK How were the recordings?

LS Better than I would have expected. But then, I haven't got the final copy. What I will do is get that done this week; then I will run off copies and send you a copy. Sometimes the secretary wouldn't know what the word was, so I had to go back over it and listen to it and rearrange it. Our poor secretary was just overworked. She was trying to do two jobs at the same time. I hope our other secretary is back this week, in which case it will be a little better.

[Pause in recording: hypnotic suggestions to Carl for regression to the UFO experience and review of events.]

CH I see the elk in the clearing. I raised the gun to shoot. I could see the bullet coming out of the gun. Walked down, bent over, picked up the bullet, steadied the gun in my right hand, when I heard the branch snap, I swung, put my left hand back on the gun, holding the gun down.

LS Now you can remember what happened.

CH Shifted and put the gun in my left hand, taking the bullet out of my right, with my right, put it in the canteen pouch. (Pause.)

LS OK. So that helps explain what happened when you were picking up the bullet. Then at that time, did you...?

CH I did this at the time I was turning around.

LS While you were turning around. You had heard a sound?

CH I heard this sound; then this man was standing up on the side of the hill by the trees ... shaded.

LS About how far away did he seem to be?

CH Oh, fifty or seventy feet. Really couldn't tell his facial features too good at that point. He walked toward me, then I could see that he wasn't one of our planet. Then the pills. He says, "Are you hungry?" I told him, "Maybe a little." He threw a package of pills. I took one. He wanted to know if I wanted to go with them. And I said, "Might as well." The next thing we was inside this cubicle-type of office. It was kind of transparent.

LS Could you see through it so you could see trees?

CH You could see trees through it; you could look down and see the ground. Then he pointed at this lever on the front, and then the next thing you could see a ball below, like a basketball, where the ground was there before, then we landed where the lights were bright.

LS Did it seem like the lights were bright all around, like during the day? Or at night?

CH It must be night, because the lights were in a confined area. Like artificial light, not sunlight. They only cast out maybe a hundred yards in a circle. Real bright, different colors. (Pause.) Then there was a shield! (Raising his hand.)

LS A shield comes up?

CH Yeah, they're pushing it towards me. Then I'm behind the shield. Then they take it away.

LS Did they say what the shield was for?

CH No. Only one talked: Ausso.

LS Did you see anyone else beside him with the shield?

CH No. Just him. The shield just slides, kinda rolls. I told them, "The lights hurt." The sun, our sun, burns them. I'm not what they want. They'll take me back. (Pause.) Then, they kind of drifted me down, or beamed me down. I was standing flat-footed on the side of the hill, when they left; then, I slept and rolled over the rocks to the ground. Then I got up and started walking down the road.

LS And your rifle?

CH Rifle? I had it in my hand. I walked down the road; seen the pickup; passed the pickup. A mile or so down the road, I turned around and came back to the pickup. I heard a woman talking. I tried to talk to her on the radio and she wouldn't answer. I kept trying and Roy Fleming got on the radio. We talked for a long time. They come and got me. (Pause.)

LS OK. Can you recall anything else at that time? That was unclear before?

CH The pickup just ... disappeared.

LS The pickup disappeared? When did that happen?

CH Oh, when we got above the trees a little ways, then the pickup disappeared.

LS So when the cubicle was up above the trees... ?

CH But I didn't see where they put it.

LS Did you see how it happened? Did you see... ?

CH He just pointed his arm at it [sounding puzzled], his right arm, and it disappeared.

LS It disappeared? (Pause.)

CH (Nodding.) (Pause.)

LS Did you look at the cubicle...? Did you see anything else around the cubicle? You said you saw levers before.

CH Just a big star on the left-hand side of the levers, up a ways.

LS The star was similar to the star he had on his belt? And you said you saw some letters on the levers? On the knobs of the levers, or on the sides?

CH On the side.

LS Can you look closely to see if you can focus on them; can you see those letters?

CH Can't see them. ⊞

LS Can you see anything else beside the levers? How many levers can you see?

CH Three.

LS And are there slots?

CH Up and down.

LS Can you estimate how long the slots were?

CH About six or eight inches on the first. About an inch shorter on the next one; then, about an inch and a half shorter on the last one. They're just smaller levers as you go that way. I don't know what they're for.

LS OK. How long were the levers? Can you estimate that?

CH About six, four, and two.

LS Six inches?

CH Yeah.

LS Do they have a knob on them?

CH Knob on each one. Black, like a shifting knob on a pickup.

LS About that same size?

CH Graduated down to different sizes.

LS How big would you estimate the diameter of the first one?

CH About an inch and a half in diameter, and the other one was about an inch and the other one was about a half-inch.

LS Did you see any of the knobs move?

CH Only the big one... Down.

LS Can you see anything else around the lever? Were they on any type of object?

CH Just a little square box, like ... kind of round over to the back and down to the floor, but it is transparent, too. There's nothing coming off of it.

LS Could you estimate the size of the box? Or how high it was?

CH Well, I would say about two feet high. About a foot flat across the front. The back ... about five inches, towards the wall, and curved down.

LS So it was wider at the base than it was at the top?

CH No. It was narrow at the base; about four inches wide from the wall--out; then it come up and it curved out to a flat surface about a foot to the front to the three levers.

LS OK. Maybe later on, you can draw a sketch of that.

CH Yeah.

LS Is there anything else you can see besides the big star on the left-hand lever?

CH No... Oh! The mirror on the top right-hand corner. The elk; I can see in behind me. In the cage like a door.

LS A cage-like door? Bars or...?

CH Cross pieces. Like a corral, only built all the way to the top.

LS You could see them [elk]? Do they seem to be moving or do they seem to be still?

CH Still. Like stuffed animals; standing just like they were in the same position.

LS Were they in the same position in relation to each other? When they were in the clearing?

CH They are sideways to me now. They look just about the same.

LS OK. So you can tell there is a mirror on top of the right-hand corner of the cubicle? You can see the elk reflected in the mirror?

CH (Nodding.) (Pause.) Power. What powers the craft? All you could see was kinda ... not really daylight--not really dark. They power it by "magnetic force"... No sound.

LS This is what you were told?

CH Ausso said.

LS Ausso said that?

CH Powered by magnetic force.

LS Did he tell you anything about the pickup or say anything about the pickup?

CH No.

LS When he moved the hand toward the pickup, and the pickup disappeared, was there any sound?

CH No.

LS Did he say anything about what happened to the pickup? Did he talk to you any time about the rifle?

CH Primitive weapon.

LS Primitive weapon? (Pause.)

CH Just for food. He wanted to keep my gun.

LS He couldn't? He wasn't allowed to?

CH He said he couldn't; he didn't say why.

LS Is there anything else he wanted to keep?

CH No.

LS Did he say anything else about the craft?

CH No.

LS When he talked, did you see his teeth?

CH Not really, just when he opened his mouth wide. He had three teeth on top and three on the bottom. None on the sides. He didn't open his mouth very wide, only maybe to yawn or something.

LS You remember him opening his mouth sometime?

CH Just yawning ... just yawning after they took the shield away.

LS Did he say anything else about the shield? How long was the shield? Was the shield between him and you?

CH Yes, I couldn't see him when the shield was there. It was about ... oh, I am not sure how big... I was there... How tall, how wide? It would be ... well, with normal height, it would be about four feet and about eight feet high. It blocks out all vision. You can't see nothing except the shield.

LS What did the shield look like; could you tell me?

CH It looked like a wall coming toward me.

LS Did it look like it was made out of metal? Could you tell any texture?

CH Kinda glassy-like. You couldn't see through it. Like maybe slate, but it was real glossy.

LS Glossy? Could you tell how think it was?

CH No. I didn't get to see the side, it come from the front.

LS Could you estimate how long the shield was in front of you?

CH Oh, about four or five minutes.

LS During that time, was the helmet on your head?

CH No. We were standing up.

LS You were standing up? So you didn't have the bands around your arms or legs?

CH No. We were out ... we weren't in this craft.

LS Oh, I see. You were outside the cubicle--outside the craft?

CH We were inside this big ... [sounding puzzled] ... oh, I can't describe it ... like a tower. But it looked too skinny to be inside it.

LS So it is hard to know how you could be inside, but it seemed that you were inside that big tower?

CH We were going <u>up</u> an elevator.

LS So that tower, when you saw the lights, it seemed like you were inside it and going up an elevator?

CH On the inside, behind the lights. It's not so bright here. There's other people ... not them, but people like us. Three ... five--standing by the door. Going back...

LS Back in time? Back to see those people?

CH No. Back in the building.

LS OK. Go on back and see what you see.

CH It's dim. Then the shield. We go down a tube--like an elevator. Didn't see nobody. Then we're back outside, back in the craft. Then I could see two girls, a bigger girl, a boy, then the old man, maybe fifty or fifty-five. H

LS Did you talk to anybody when you were up in the elevator or inside the tower?

CH No.

LS Did anyone talk to you?

CH Just Ausso.

LS What did he say during that time?

CH He was talking about fishing and hunting--and exploring our country; he just kept talking. Nothing important, really, just small talk. Looking for birds, animals, they don't want nothing but animals.

LS Did he say what kind of animals they like?

CH No, just animals.

LS They want animals for food?

CH Food. Places to breed them on their planet.

LS Did he say anything else about their planet?

CH Fish... They don't have no place to keep them, so they have to keep coming back after them--out in the ocean.

LS Did he say why they don't have any place to keep them ...? Their lakes?

CH Their sea won't take care of them ... they die. Not enough oxygen or something--they don't know for sure.

LS But they can breed other animals?

CH Yeah. Our animals can live up there just like down here. But the fish ... they've got a certain oxygen--or iodine--or something, he says, that they're trying to find out what it is.

LS Did he say anything else about the planet: social, political, or economic? Did he talk about these kind of things?

CH No. Just ... he's a hunter or explorer; that's all he does.

LS Did he say anything about anybody else? Are there other people who do other kinds of things?

CH He didn't say.

LS Did you ever have an opportunity to be very close to Ausso One?

CH Um-m-m ... thirty feet, maybe. According to size; I can't tell for sure.

LS Were you close enough to touch him?

CH No. Can't touch him.

LS He wouldn't let that?

CH No.

LS How about when you were sitting in the chair? Did he seem closer then, in the craft?

CH Maybe twenty feet, according to the way the seats were --straight across. But, uh [sounding puzzled] ... the cubicle ain't that big.

LS So it just seemed that way. OK. Maybe later on you can draw a diagram or sketch of where the seats were in relation to one another.

CH Yeah. The "force fields" are around all of them ... and me. You can move but can't reach out too far... Unless the "force field" expands, he said. That's the way they travel without helmets--or any type of oxygen gear ... through magnetic force.

LS So that they can move on our planet without the use of the helmet, because they can regulate the size of the "force field"?

CH They got oxygen inside the "force field."

LS Did he say that they use oxygen at the same level--at the same rate, as on this planet?

CH He didn't say nothing about it; except that ... if our animals could live there, it seems like the oxygen would be about the same.

LS Did he say that they can move without walking?

CH Freely.

LS Is there some other way of transporting themselves?

CH No, they don't ... they don't touch the ground. He uses his right arm ... to point where he wants to go --and he goes. He moves freely... No, he said, we move freely, anywhere we want to go ... any where we want to go.

LS Is this the way he did when he was on the elevator? He'd point... ?

CH I don't remember walking [sounding puzzled]. We had to move some way... I can't remember moving from one place to another--other than being here ... and then there. He didn't say nothing about how you could get there and back--you just move freely.

LS Can you recall the inside of the tower elevator--how high the rooms were, or the hall, or the elevator?

CH About normal size.

LS Like eight feet high?

CH The hall was about six feet wide. The room we were in was big: twenty four by ... maybe thirty [feet]... Nothing there.

LS That was the room where the shield was?

CH The room is empty; there's nothing there but the room --nothing in it. And the shield comes from the side-- out of the wall.

LS Did Ausso One point at the shield?

CH No. I stood up on a little platform like ... in the room; the shield come out ... stayed four or five minutes and then went back into the wall, and I stepped down. We walked back down the hall.

LS You remember walking down the hall?

CH Down the hall. We walked back down the hall. The door opened and we stepped on a platform and went down. We got down, and walked through another hall to a door... Stepped outside the door, and then we didn't walk any more. We just ... were here ... and then there.

LS Then you were back out and settling in the cubicle?

CH Back in the cubicle... I seen the five people standing in the doorway--going in.

LS Going in?

CH Platform... Must be a platform, or something, that opens the door. When you land on the platform--or stop--then the door opens; then you have to walk on inside. Then we're back in the cubicle ... there's the five people... He said, "We'll take you back." Nobody with him, but he said, "We."

LS You didn't see anybody else?

CH But I didn't see nobody else.

LS Did he talk further after that? Did he say anything else to you?

CH No. [Pause.] He said, "We'll set you down close to where you were." About two miles, I guess.

LS When was it that you were told that you weren't what they needed? In the tower?

CH No; that was in the cubicle... We were back in the cubicle, and I told him the lights hurt my eyes. He said the sun burns them; he'd take me back; that I wasn't what they wanted ... needed.

LS He said that to you after you had been in the tower and the shield, and after coming back to the cubicle?

CH After we had been in the tower ... in front of the shield ... and back to the cubicle; then, he said, "You're not what we need. We'll take you back."

LS Was that when the pills... ?

CH The pills were in my shirt pocket--went up towards the "star," on the left-hand side, and they stopped. They stayed there [sounded puzzled]. Maybe there was a shelf--transparent, or something. They just laid there.

LS They just laid there?

CH Uh huh.

LS OK. After that, when they said they would take you back ... then did you remember how much time the craft hovered over where the pickup was?

CH Oh ... I can't really determine the time... Maybe, thirty minutes or so somewhere along there.

LS Anything else happened at that time? Could you see the mirror at that time? There on the right-hand side?

CH There's nothing back there anymore.

LS Can you see the crossarms?

CH No cage.

LS No cage? Still the same number of chairs? Four chairs?

CH Four.

LS Four chairs. But nobody else there besides you but Ausso One?

CH No. Nothing behind us--through the mirror, there's nothing there--not even the cage.

LS And did he move any lever when you started back?

CH Same one: the first one; he moved it down.

LS Uh huh.

CH I don't know what them other two levers were for.

LS How about when you were getting out, when he was going to set you down: did he point toward you or did he move a lever?

CH First he just ... moved just a little. First lever ... down just a little. Then [sounding puzzled] I was on the ground.

LS Did he say anything to you when you were going?

CH No. "We'll see you."

LS He said that? "We'll see you"? Did you think he meant he would come back again, or just a friendly goodbye?

CH Just a friendly goodbye, probably; the way he said, "We'll see you." Then, this little lever moved and--whit!--I was on the ground!

LS Do you remember how the rifle got in your hands?

CH It was setting by the seat; he just had it elevated in front of him, looking at it, and then he had it move over and set down by the seat where I was settin'. When I left, and he said, "We'll see you," I grabbed hold of the rifle; and the next thing I was on the ground.

LS You don't remember how you got from the seat... ?

CH From the seat to the ground... ? I don't know. I just went like <u>that</u>! [Moving hands.] And I was <u>gone</u>!

LS Before that, were there bands over your arms and legs coming back?

CH Yeah. No helmet, though.

LS No helmet? But then, do you remember the bands being released?

CH No.

LS Just gone from the seat--and then down?

CH Yeah.

LS Did you feel yourself going down?

CH No. Just like I say, you are sitting here and then you are over there. Don't feel nothing.

LS Then you were flat-footed there on the ground? With the rifle?

CH Set down facing ... toward where, later, I found the pickup. But my left foot was up a little and my right was down on the side of the hill. Then, a rock slipped and I rolled to the bottom ... which was about eight feet--nine. Then, I got up and I was in the road. I just walked back down the road towards the north, and it curved back around towards the west; and the pickup was down, just outside the clearing, down in the bottom. No way you could drive a pickup in there.

LS No trail in there?

CH A road--but it was bad!

LS Rough road?

CH Kinda ... ditches; tire tracks wore down way below, and you would "high center" anything on there.

LS Kinda rough to remember that feeling? [Carl rubbing neck and shoulder.] OK. Just work on that and say now you are going to get past that event and the pain is going to be gone. In a few minutes, the pain will be gone; you'll be able to ease that shoulder and that neck, and you'll feel better than ever. So that if you ever go through that experience again, you'll be able to do so without discomfort. You'll be able to ease that pain in the neck and shoulder, and there'll be no

discomfort associated with that experience. But if there is any feeling, it will be something that will remind you of the experience; help you to understand it; help you to deal with it; help you to accept the reality of it, and the significance it has for you. There's no need to have the discomfort, and you can let the feeling go away ... just let it disappear. But if there is any significance to the discomfort, you can use it--you can use it to recall any other feelings or memories of the experience. Then you can recall it, describe it, and add to the basic description of the event. OK. As you relax deeper and deeper, now mentally, just quickly review... You can go through your mind, quickly, like a series of shots ... and see if there is anything else that occurred that you didn't describe ... that may be significant or important. You can find yourself going back to the crest of the hill ... seeing the elk ... lifting the rifle ... firing ... seeing the bullet ... picking it up ... turning ... talking to the man ... being in the cubicle ... going to the other place ... getting out of the cubicle ... being in the tower ... walking along ... going to the big room ... the shield... Does the shield ... is the shield for an examination? Were you told what the shield was for?

CH No. (Pause.)

LS Then going back through the hall ... back to the end of the tower ... back to the cubicle ... being told that you would be going back ... the lever moving down ... back to the spot where the pickup was ... then being glided down... Now, without the discomfort in the shoulders. Now anything else that might be important --in terms of the hospital? OK. Fine. Doing a good job remembering; later on, if there is anything else which does occur--in terms of remembering--you'll be able to recall and describe it. Now feeling good about being able to have gone back; feeling good about recalling events; knowing that the experience is over. At the same time, anytime you wish, you can always go back to the experience; you can recall without discomfort; there is a feeling of satisfaction of experiencing something significant; also, feeling good that the experience is over. Now, whenever you wish, you can remember these experiences, remember the memories, remember the impressions; knowing that this experience will be there in terms of memory, and also that it has

a good feeling associated with it. When you are ready, just open your eyes, feeling wide awake, alert and fresh, feeling fine and feeling good.

[Carl opens his eyes and shakes his head.]

CH Well, I better get a cup of coffee.

LS I'll get this [tape] transcribed, and give you a copy of the transcript.

Here ended the second taped interview. Following are various commentaries and documents.

SELECTED EVALUATIONS OF EVIDENCE RELATED TO MR. HIGDON'S ALLEGED UFO EXPERIENCE

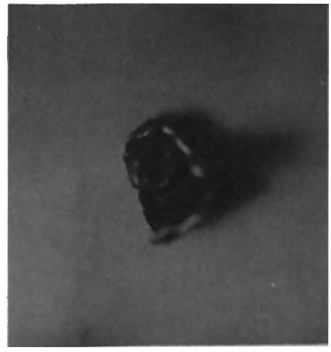
Bullet Evaluation

Carl was willing to lend the bullet to me for evaluation. I mailed it to Jim and Coral Lorenzen, who gave it to W. W. Walker, APRO consultant in metallurgy. Later, early in 1975, while visiting APRO Headquarters in Tucson, Arizona, I talked with Dr. Walker about the bullet. He expressed the opinion that the condition of the bullet was strange: apparently the bullet had smashed against "something"; however, he stated that he had no way of determining what was hit by the bullet. The bullet did not show scratches, which might have been expected if the bullet had been fired into a stone or rock. Also, there was no lead core associated with the copper casing of the bullet. Dr. Walker and Jim and Coral Lorenzen speculated on the question of the lead core. If it were retrieved, what could be learned from the condition of the lead core? Figures 3 and 4 are photographs of the bullet.

During the summer of 1975, Carl and his family drove to the area where he had been hunting; he used a metal detector to search the ground, but he reported that he was unable to locate the lead core of the bullet. Figure 5 is a photograph of the area of the incident.

Medical Examination

During the winter of 1975, the first attempt I made to



Figs. 3 and 4. Photographs, from opposite sides, of the bullet fired and recovered by Carl Higdon.

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meet with the attending physician, R. C. Tongco, M.D., P.C., proved to no avail (because of blizzard conditions). However, during the blizzard, I had the good fortune of meeting Bob Rosaker and his mother, Mrs. Rosaker. Bob attempted, unsuccessfully, to use his four-wheel drive vehicle to pull my station wagon from a ditch where it had been inexpertly driven. (Bob had been a member of the group which rescued Carl.) The comments from Bob and Mrs. Rosaker about Carl Higdon were similar to those from other persons who know Carl: puzzlement about the claims Carl made about his UFO experience, but a firm belief in Carl's integrity and character as a person. They drove me into Rawlins, so that I could hire a tow-truck operator to retrieve my car. The young man who drove the tow truck did not know Carl personally, but he was convinced that the "guy who claimed he went on a ride in a UFO" had been taken to the Wyoming State Hospital in Evanston! When I expressed my doubt about this, he turned to a buddy who "verified" his comment about the hospitalization of the "guy." Later, that afternoon, while the blizzard continued and while I played pool in the living room of the Higdon mobile home, I told Carl about the incident with the tow-truck operator. His reaction was typical of his life style: a quiet acceptance of the disbelief of other persons, but a firm conviction of the reality of his own experience.

My plans to interview Dr. Tongco, and the attending nurse, Mrs. Ella Pedersen, were delayed until March 10, 1976. On that day, Mrs. Pedersen was willing to express

Fig. 5. Photograph of the approximate location of the alleged encounter with a humanoid.

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her opinion about Carl's condition when he was admitted to the Carbon County Memorial Hospital: "listless, like all the juice was taken out of him." Mrs. Pedersen expressed no opinion about Carl's UFO experience. She did not recall saying anything to Carl about "strange events" which occur in the Medicine Bow National Forest; however, she believed that he had experienced some bothersome reactions. She seemed pleased that Carl believed that she had been helpful to him, especially in soothing the irritated condition of his eyes. She said that Dr. Tongco, a native of the Philippines, had arrived in Wyoming shortly before Carl's experience;

she believed that Carl was one of Dr. Tongco's first patients in Rawlins.

I enjoyed my visit with Dr. Tongco; in an intelligent and courteous manner, he described the condition of Carl Higdon on October 25, 1974: the patient was "disoriented" and "confused"; he wished not to be touched; he talked about a "strange experience" and about "two men"; he complained about the bright lights in the room; he complained about the condition of his eyes, which hampered any examination of them.

Dr. Tongco does not recall telling Carl that his blood was "very rich" or "super rich." However, Dr. Tongco stated that initially he had been concerned about the possibility of a "small heart condition"; therefore, he conducted an electrocardiogram examination. He said that no difficulty was noted from the EKG findings. Also, he said that normal X-ray films were obtained. He stated that he had no opinion about the reality of the patient's claimed experience; however, apparently there was no medical finding which might explain the patient's condition. He expressed a willingness, with the written permission of Mr. Higdon, to release information about Carl's examination and treatment. See statements of "History and Physical Examination," and "Discharge Summary," reproduced on pages 318-322.

Carl also reported that he had been hospitalized and X-rayed, in 1958, by a physician, Dr. Byrd, in Kimball, Nebraska; he was told that the X-ray film showed scar tissue in his lungs. During the spring of 1976, Carl and Margery attempted to contact the office of a physician who had taken over the practice of Dr. Byrd when Dr. Byrd retired; however, they learned that this physician no longer had his practice in Kimball. They were not successful in obtaining information about the location of the X-ray film.

Polygraph Examination

During the summer of 1975, I made arrangements with a polygraph examiner whom I know and trust to conduct a polygraph test with Carl. Carl had expressed his willingness to participate and he and Margery drove to Laramie on an autumn Saturday to do so.

When arrangements were [continued on page 323]

HISTORY AND PHYSICAL:

Date Dictated: 10-26-74

Date Transcribed: 10-26-74

Hospital No.: 8695

Admission Date: 10-26-74

Name	Doctor	Age	Sex
Higdon, Carl	Dr. Tongco	41	Male

CHIEF COMPLAINT: Loss of memory. Lost in the woods.
PRESENT ILLNESS: This 41 year old white male went hunting this morning, at 8:00. He went hunting alone and never heard from him until about 6:00 this evening. He apparently went out in one of the company vehicles and while he was talking to someone at home he could not identify who he was, did not know where he was. He was completely lost. He didn't know his name. It took about 3-4 hours before the search party could get to him in the woods. When they found him this patient had no equilibrium, he could not stand straight.

The patient was confused. The patient does not appear hurt when they found him; except he complained of too bright a light and that he did not know where he was. This patient kept on talking about two men that were medium height and that had hair similar to a twig. This man never got to touch him, that he never touched people. There were two persons, they were dressed in black, just like a priest; although there was no white on the collar. The man communicated to him in English and they offered him a ride on sort of a vehicle that flew. The persons he conversed with apparently touched a button and he just found himself in this square cube-type vehicle and he was sitting in a small chair. There were press button gadgets which automcatically put the seat belt around him. The buckles were around the chest and there were also buckles around the side of the leg. These people conversed and they offered to show him this place which was a perfect place to live and apparently they took him about 120 miles away from where he was. They never left this cube vehicle only when they reached the destination, apparently this place was very bright and he could not see anything. He just could not stand the brightness of this place. These people offered to take him back. Apparently these people are complaining about the brightness of the sun; although they could seem to tolerate the brightness of the place they took him to. These strange people were not wearing masks and did not offer him any mask when he was complaining of too bright a place. Beyond that this person does not recollect his name, he doesn't know where he lives, he doesn't know where he works, he doesn't know whether he is married. All he knows is that they call him Carl Higdon.
ALLERGIES: He is not allergic to anything.

MEDICAL HISTORY: Not remarkable.
SURGICAL HISTORY: Not remarkable.
FAMILY HISTORY: Mother had cancer. Negative for diabetes in the family. His father recently died of a heart condition.

PHYSICAL EXAMINATION

Well developed, well nourished white male. Patient does not remember anything about his identification or where he is. This patient keeps on talking about these two people that took him and they flew.
EYES: Could not be examined properly because he claims that the light is just too bright. He could not stand looking at him.
ENT: Not remarkable. There is no outward sign of any injury, ecchymosis or hematoma.
NECK: Supple, no bruit.
HEART: Normal, no murmurs.
LUNGS: Clear to auscultation and percussion.
ABDOMEN: Flat, no masses.
EXTREMITIES: Normal. Upper arm could be moved. There was no limitation of motion. Deep tendon reflexes are normal.

IMPRESSION: 1. Amnesia

R. C. Tongco, M.D.

DISCHARGE SUMMARY

Patient: Higdon, Carl Age: 41 Admission Date: 10-26-74

Hospital No.: 8695 Dismissal Date: 10-28-74

Attending Physician: R. C. Tongco, M.D.

Provisional Diagnosis: Amnesia, most probably secondary to drugs.

Final Diagnosis: Amnesia, etiology unknown.

Chief Complaint: Patient was admitted for loss of memory while hunting in the woods. Present Illness: This 41 year old white male went hunting the day prior to admission and was not heard from until 6:00 P.M. the same day. At that time the patient was disoriented, does not remember anything about himself, was completely amnesic. The patient's history was one of seeing some strange people that took him for a ride and went 163,000 miles out of the earth orbit and he had definite descriptions about his meeting with these strange people. For more details see the "History."

Physical Examination did not reveal anything remarkable. Past Disease: Not remarkable.

X-Ray Data: This patient had x-rays of his back, spine, skull and they were all within normal limits.

Laboratory Findings: Hblg. 15.5, white blood cells 4,900. Urinalysis: Normal. Bilirubin 0.50 total, .21 direct, .29 indirect. Uric Acid: 5.5, SGPT: 8, Alkaline phosphatase: 2.5. Cholesterol: 232. BUN: 13.8

Hospital Course: This patient had amnesia the first 2 days of admission without recollecting or remembering anything about his past. He could not recognize his wife. Towards the 3rd day this patient has complete recollection of his faculties, his place of birth, his wife and his children. However he still feels strongly about the story he gave regarding the meeting with these 2 strange persons. The patient had urine examination for narcotics and opiates. However, they were not back before discharge. The patient was in good condition.

He is advised to return in 1 week for another visit in the office.

Prognosis: Good

R.C. Tongco, M.D.

R. C. Tongco, M.D.
Dictated: 10-28-74
Transcribed: 10-29-74

made for the polygraph examination, the examiner requested --and I agreed--that his name and position be treated as confidential information, although he indicated that he would be willing to share his findings with any interested polygraph examiner. He cautioned me about the purposes and procedures of a polygraph examination. He discussed with me the difficulties of interpretating "positive" results of an examination of a witness who "believes" in his or her experience, as well as the difficulties of interpreting "negative" results of an examination of a witness who may doubt the reality of a UFO experience. We agreed to proceed with the examination, because Carl expressed his willingness to allow the findings to be published--regardless of the interpretation of the results.

After the examination had been completed and the charts had been scored, the polygraph examiner showed the charts to me and provided his opinions: the recordings indicated that stress reactions were observed in response to the crucial questions about Carl's UFO experience. (A copy of a few of the questions asked is given in Figure 6.) However, there was difficulty in interpreting the responses. The examiner indicated that the chart patterns could be interpreted as an indication of "attempted deception," if the tracings were viewed as responses to the questions about "facts" or "physical events"; on the other hand, the examiner indicated that the results could be an indication of stress reactions to questions which may have reminded the examinee of his own doubts about the reality of a distressing experience.

I was disappointed when I learned the results of the polygraph examination. I telephoned Carl and told him that the results were "inconsistent": the charts did not support his claims about the UFO experience. Carl expressed his disappointment with the results, also; however, he expressed his willingness to "stick by" his story, regardless of the attitudes of persons who would be informed of the findings of the polygraph examination.

Later, when Carl agreed to release information about the investigation of his UFO experience, I asked him if he were willing to participate in further evaluation, involving psychological inventories, psychiatric interview, psychic impressions, and another polygraph examination. I told Carl that I would pay him a fee, plus expenses, so that he could serve as a consultant to me. He agreed, and he and Margery came to Laramie on Saturday, June 19, 1976. The

"YOU" PHASE TARGET "A" *continued*

USED ON CHART NO: (1) (2) (3) 4 5

(y)	14 (J)	WERE YOU BORN IN THE UNITED STATES?	13 (J)	Higdon (Last Name)	13 (K)	Carl (First Name)	
(y)(r)	39	RE: WHETHER (OR NOT) YOU ~~HIMSELF~~ actually had that UFO experience in quest--	DO YOU INTEND TO ANSWER TRUTHFULLY EACH QUESTION ABOUT THAT?				

	25	ARE YOU COMPLETELY CONVINCED THAT I WILL NOT ASK YOU A QUESTION DURING THIS CHART THAT HAS NOT ALREADY BEEN REVIEWED?
(g)	46	BETWEEN THE AGES OF (18) AND (38) -- DO YOU REMEMBER: Ever cheating on your income tax?
(r)	33	Are you making a false statement about seeing and talking to an alien from another planet?
(g)	47	DURING THE FIRST (18) YEARS OF YOUR LIFE -- DO YOU REMEMBER: Ever cheating on an examination?
(r)	35	Did you ride in that space craft you have described to me?
	26	IS THERE SOMETHING ELSE YOU ARE AFRAID I WILL ASK YOU A QUESTION ABOUT -- EVEN THOUGH I TOLD YOU I WOULD NOT?

(y)(r)	44 (J)	REGARDING MEDICATION -- ARE YOU HOLDING BACK INFORMATION ABOUT ANY PILLS OR MEDICINE YOU HAVE TAKEN DURING THE LAST 8 HOURS?
(y)(r)	44 (K)	REGARDING OTHER LIE DETECTOR TESTS - ARE YOU HOLDING BACK INFORMATION ABOUT ANY OTHER TIME YOU HAVE TAKEN A LIE DETECTOR TEST?

same polygraph examiner (who had completed further training for the purposes of certification) conducted the examination. The examiner concluded that the pattern of responses were "inconclusive": the charts did not tend to support or reject Carl's claims. I was neither pleased nor displeased with the findings of the examination. I had suggested the second examination for two reasons: to learn if there might be a replication of earlier responses, and to suggest to the examiner that questions be phrased in terms of belief rather than in terms of acts--for example, "Do you believe that you spoke with an alien being?" rather than the more limited question "Did you speak with an alien being?"

I am puzzled about the possible interpretations of the results of the polygraph examinations; however, I am reminded that the examiner had warned me of the difficulties of interpreting results which might be related to psychological conditions of doubt, conflict, and emotional stress. (He also referred me to recent useful studies, among them Barland & Raskin 1973, and Orne, Thackray & Paskewitz 1972.) Although I had assisted in previous discussions of questions to be presented to UFO observers during polygraph examinations, I began to consider the possibility that the polygraph examination is not a conclusive test for evaluation of a UFO witness. The "lie detector" test may be useful to minimize the possibility of an outright hoax; but what responses can be expected if a UFO witness has been "mentally programmed" rather than "physically abducted" during a UFO experience?

Psychiatric Evaluation

Arrangements were made with Dr. Angela I. Howdeshell for a psychiatric evaluation of Carl Higdon. I have known Dr. Howdeshell for several years; there have been many times when our staff counselors (Division of Counseling and Testing, The University of Wyoming) have referred student clients to her for evaluation and possible treatment, including medication and/or hospitalization. I view her as an ethical and competent psychotherapist, and hold an especial regard for her diagnostic skills.

Dr. Howdeshell met with Carl and, later, provided me with the following evaluation of the psychiatric interview

Opposite page: Fig. 6. The Pertinent Polygraph Questions Asked of Carl Higdon.

(reproduced here by permission). (Six lines from the original have been omitted; they refer to intimate family matters probably irrelevant to the purposes of the evaluation.)

ANGELA I. HOWDESHELL, M. D.
Suite 47, 2440 Grand, Laramie, Wyoming 82070

July 19, 1976

Leo Sprinkle, Ph. D.
Chairman Dept. of Counseling & Testing
University of Wyoming
Laramie, Wyoming 82071

RE: Mr. Everett Higdon

Dear Dr. Sprinkle:

This is in regard to Mr. Everett Higdon who you referred for psychiatric evaluation. I saw the patient for the first time on June 19, 1976.

Mr. Higdon is a 43 year old white male married. He was born in Camelton, Texas. He was the fifth of ten children coming from a welfare family. His father died in 1970 of a heart attack. The father was described to be a good father, but he became sick in 1943 with tuberculosis and as a result has been unable to care for his ten children. The patient was placed in an orphan home three times. The first time was at the age of 9; the second was at the age of 12 at which time the welfare office took the children away from their mother and was placed in an orphan home. He believed that he was happy with his mother, apparently the welfare office believed otherwise. After the third time he was placed in an orphan home, he stayed with his mother, and at 17 he left home to join the service. The mother was described to have a "rough life." His parents were divorced in 1947, four years after his father became ill....

Looking back at his childhood, he claims that none of the ten children "turned out bad" in spite of their background. All ten have a satisfactory life. None had psychiatric illness, alcoholism, involvement in drugs or infractions with the law.

At the age of 19, the patient was married, his wife then was one year older. The marriage lasted five years from 1952 to 1957. To this marriage three children were born, now 23, 21, and 18, all boys.... The

patient finally filed for divorce. He was single for one year and then remarried. In this marriage four children were born: ages 16, 15, 14, and 12.

As a person he believes that he provides for his family well in that he is an average man who is an oil field worker. During his free time he is a homebody working around the yard. He plays baseball with the children. He goes fishing and hunting and walks around with the boys. His life is mostly outdoors type.

The patient's medical history shows that he had mumps, measles, chicken pox as a child. In 1958, during a routine x-ray, he was found to have scar tissue in his lungs and as a result he was placed in the hospital. In 1964, he had a vasectomy. It was of mutual consent between him and his wife. He was diagnosed in 1968 to have kidney stones. He claims that he was under the care of a chiropracter and he would pass nine kidney stones in one year. He claims that he had not had any kidney stones since 1974.

The patient came in for psychiatric evaluation to determine his emotional and mental state because of his report of a UFO sighting. The patient claims that in 1974 he was picked up by a UFO man in Medicine Bow National Forest south of Rawlins. He described to me in detail the incident that happened which he claims were all recalled through hypnosis with you. He claims that before hypnosis, all he could remember was that he went hunting, he saw an elk, tried to shoot it and saw a man in a frog-man's suit; then he would remember being confused and being in the hospital. According to him since you have started working with him, he has become stronger in his belief and that his experience or thought of it has not bothered him as much. He became nationally known when his experience was placed in the paper. Most of the calls or letters were good except one which he just put aside. There was one interview that was supposed to be done in Riverton but as soon as he saw the car with all the lights, the same as the platform described in the UFO experience, he turned back and never came for that appointment.

During the entire evaluation, 1 hour and 45 minutes, I found the patient to be pleasant, attentive, cooperative, open, willing to give as much information as I need. His affect was comfortable, he knows why I was interviewing him. His productions were coherent

and relevant describing the UFO experience and admitting that most of the details were recalled and remembered through hypnosis with you. His memory is intact. Judgment is fairly good. His intellectual functioning is average.

Diagnostic Impression: No Psychiatric Illness.

Based on the interview and my little knowledge of the UFO, there were two points that somehow I question but I do not know the answer. The first was his statement that they traveled for 163,000 light miles. Second, the vehicle* used by the organization or company who wanted to interview him in Riverton had the same lighting and lights in their car that were very similar to the lights he described at the platform where he got off when he reached the destination in his UFO experience.

Thank you very much for referring the case of Mr. Higdon. I found it very interesting to be part of your investigation in regard to UFO. If I can be of further help please do not hesitate to contact me.

Sincerely yours,

Angela I. Howdeshell, M. D.

Dr. Howdeshell could not, of course offer any opinion about the validity of Carl's claim; however, in her opinion, there was no psychiatric illness or condition which might account for Carl's strange experience.

Psychological Inventories

As a step in the continuing investigation of his experience, I had asked Carl if he would be willing to complete a vocational interest inventory and some personality inventories. As usual, he was cooperative.

The Strong Campbell Interest Inventory Profile (SCII) shows that Carl chose items which indicate that his "likes"

*This comment is based upon a misunderstanding; Carl was referring to a "card," not a "car." It was mailed to him from an address in Riverton, Wyoming; the address was framed with colors which reminded Carl of the lights he had seen at the "space tower."--R. L. S.

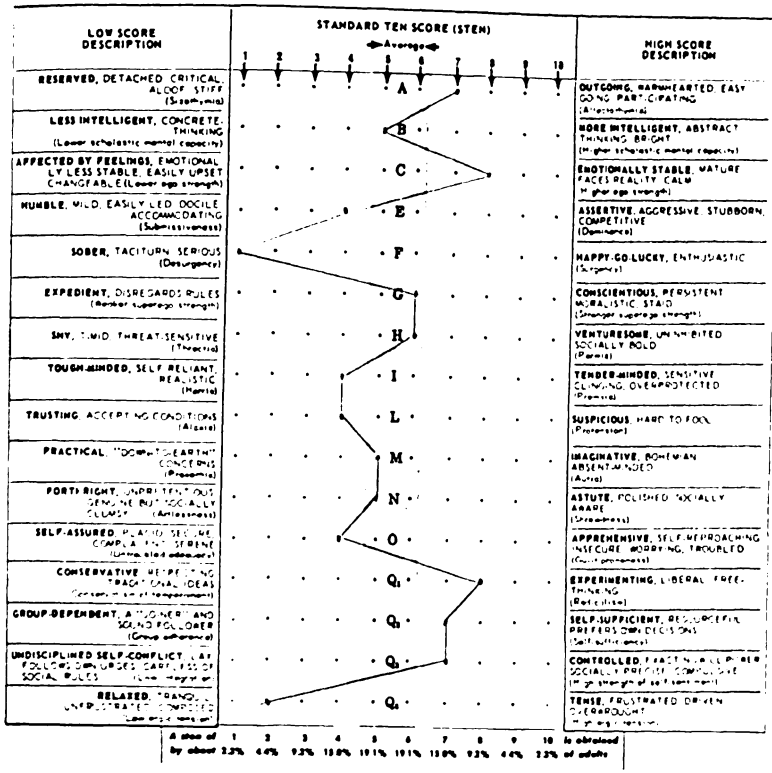

Fig. 7. Sixteen Personality Factors Test profile results for Carl Higdon. (Copyright © 1956, 1973 by the Institute for Personality and Ability Testing, Champaign, Illinois. Reproduced by permission.)

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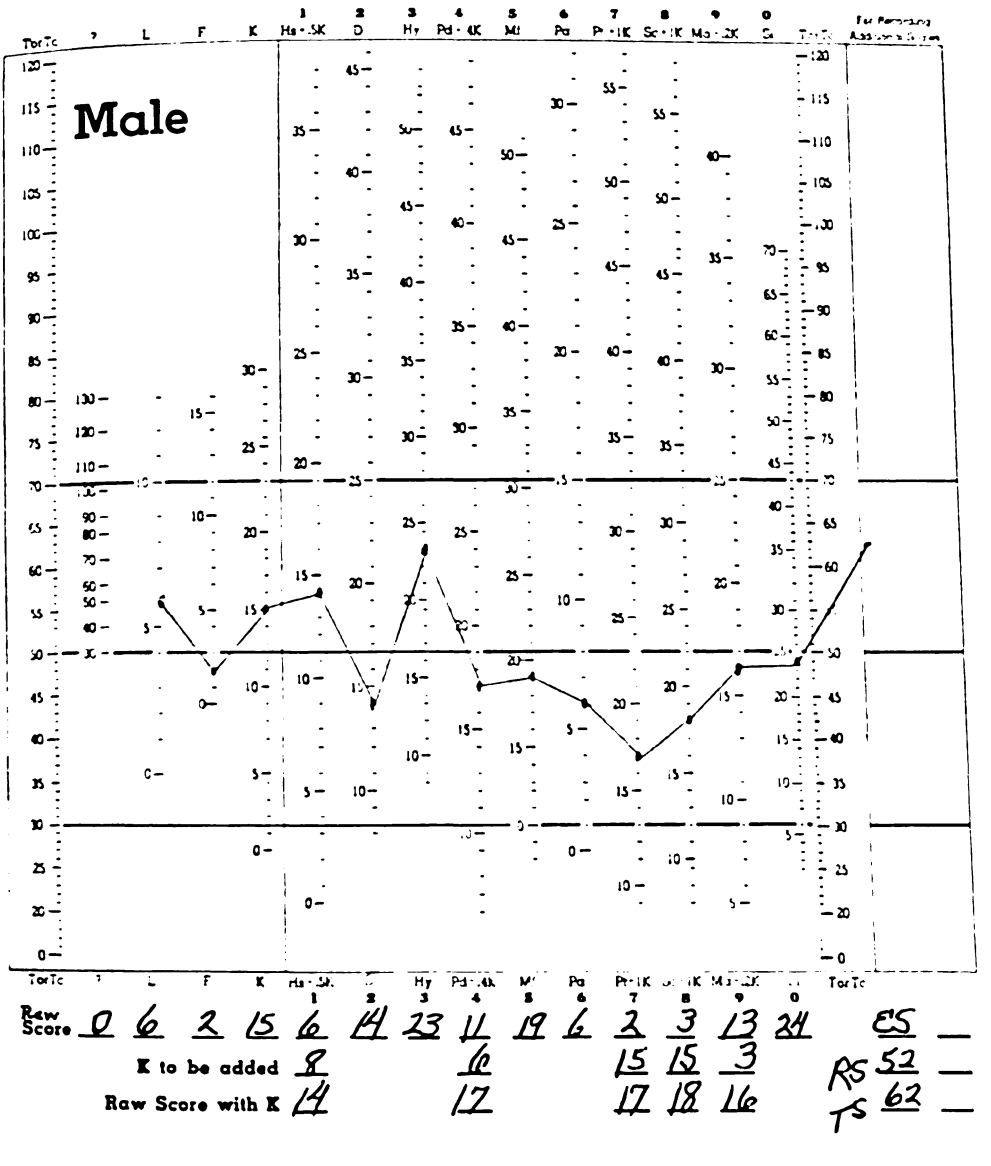
and "dislikes" are similar to those of men who are interested primarily in "realistic" activities: technical and outdoor activities. His scores also show a pattern of related interests in scientific and social service activities. His scale score (71) on Mechanical Activities is "off the top of the scale" and, in my opinion, the score reflects his basic vocational interests.

The Sixteen Personality Factors Test (16PF Test) profile shows (see Figure 7) a pattern of scores similar to that

STANDARD SCORE
100
90
80
70
60
50
40
30
20
10
0
No Cld
Df
Fav
Un-Fav
S. Cld
S. Cn
Lab
Par Adj
Ach
Dom
End
Ord
Int
Nur
Aff
Her
Exh
Aut
Agg
Cha
Suc
Abe
Def
Cn
RAW SCORE
SCORE



Opposite page: Fig. 8. Adjective Check List profile sheet for Carl Higdon. (By Harrison G. Gough and Alfred Heilbrun, Jr. Copyright © 1962 by Consulting Psychologists Press, Inc., Palo Alto, California. Reproduced by permission. Scored by National Computer Systems, Inc., Minneapolis, Minnesota.) Above: Fig. 9. Minnesota Multiphasic Personality Inventory profile and case summary for Carl Higdon. The test was taken on March 2, 1976. (Copyright © 1948 by the Psychological Corporation, New York, New York. Reproduced by permission.)

of people who are viewed as "sober" and "serious," and as "relaxed" and "composed." The pattern of scores seems to fit my own observation of Carl's behaviors.

The Adjective Check List (ACL) profile shows (see Figure 8) a pattern of scores primarily in the average range; the lowest score is on the scale called "Number Checked." The Manual for the ACL (Palo Alto, Calif.: Consulting Psychologists Press, 1962) provides the following interpretation: "The individual high on this variable [number of adjectives checked] tends to be described as emotional, adventurous, wholesome, conservative, enthusiastic, unintelligent, frank, and helpful. His is active, apparently means well, but tends to blunder. The individual with low scores tends more often to be quiet and reserved, more tentative and cautious in his approach to problems, and perhaps at times unduly taciturn and aloof. He is more apt to think originally and inventively, but is perhaps less effective in getting things done."

The Minnesota Multiphasic Personality Inventory (MMPI) profile shows (see Figure 9) a pattern of scores in the average range; thus, there is no indication of deception or of neurotic or psychotic reactions. However, three scores of interest are on Scale 3 (Hysteria); Scale 7 (Psychosthenia); and Scale ES (Ego Strength). The score on Scale 3 (T Score = 62) could indicate a tendency toward psychosomatic complaints, or a tendency toward concern about bodily functions. The score on Scale 7 (T Score = 37) could indicate a tendency toward a behavior pattern of displaying little worry or anxiety, or a tendency toward being relaxed in regard to responsibilities. The score on Scale ES (T Score = 62) could indicate a tendency toward unusual "ego-strength," or the inner resources needed by an individual in order to deal effectively with a traumatic or distressing experience. In my opinion, the general interpretation of the profile scores is consistent with my observations of Carl's life style.

Questionnaire

Carl's responses on September 25, 1975, to the questionnaire offered by the Aerial Phenomena Research Organization (1310 E. Kleindale Road, Tucson, Arizona 85712) are typical of his general style: short and to the point! Items 1 through 4 have been omitted here (they relate to name, address, age, and sex).

I. Self Information (Please complete the following items.)

5. Please encircle the number which represents the total number of years of your formal education or its equivalent:
1 2 3 4 5 6 7 8 9 10 11 (12) 13 14 15 16 17 18 19 20

6. Please list any special diploma, certificate, degree, or educational award or achievement: Auto mech school in 1951

7. Check one: Single ___, Married x, Divorced ___, Remarried ___, Spouse is deceased ___.

8. Title of present occupational position: Oil well service operator

9. General duties of present position: Run well service machine and have 2 men working under me

10. Other occupational positions which have been held prior to present position: Same for 20 years

II. Psychic Interests and Abilities (Please complete the following items. If you wish, you may use the back of the page for additional comments.)

1. Do you believe you have some ability to gain extra-sensory perceptions (ESP) of thoughts and feelings of other people (telepathy)?
Yes ___ No X Not Sure ___

2. Do you believe you have some ability to gain impressions of events or objects which are outside your usual environment (clairvoyance)?
Yes X No ___ Not Sure ___

3. Do you believe you have some ability to gain impressions of future events (pre-cognition)?
Yes ___ No ___ Not Sure X

4. Do you believe you have some ability to influence the physical environment around you (psycho-kinesis or "mind over matter")?
Yes ___ No X Not Sure ___

5. Have you ever participated in a scientific investigation of your ESP abilities?
Yes ___ No X

6. Have you participated in a séance or a group meditation to demonstrate your ESP abilities?
   Yes ___ No X

7. Do you gain some of your psychic impressions through any of these processes?
   Dreams Yes ___ No ___
   Visions Yes ___ No ___
   Prayers Yes ___ No ___
   Meditations Yes X No ___
   Communion with other persons Yes ___ No ___
   Communion with other spirits Yes ___ No ___
   Other Processes: _____

8. Through what process do you gain most of your psychic impressions? _____

9. Have you experienced a spiritual event or religious "rebirth"?
   Yes X No ___

10. Do you consider your knowledge of parapsychology (study of ESP) to consist mainly (check one or more) in the areas of: personal interest in ESP events of everyday life X; magazine and newspaper accounts of ESP events ___; empirical investigations of alleged ESP events ___; experimental investigations in the laboratory of ESP processes ___.

III. UFO Phenomena. (Please complete the following items. If you wish, you may use the back of the page for additional comments.)

1. Have you seen a UFO (Unidentified Flying Object)?
   Yes X No ___

2. If you have seen a UFO, please give the date, location, number of objects seen, and your opinion of what you saw: Oct. 25, 1974. 40 miles south of Rawlins I saw one 5' x 7' cubicle and was a passenger in it for 163,000 light miles and back.

3. Are you a member of any organization which gathers information about UFO reports? Yes ___ No X If "yes," please list the organization(s):

4. Do you believe that most "Unknown" sightings can be explained by the hypothesis of "Misinterpretation of Known Phenomena"? Yes ___ No X

5. Do you believe that most "Unknown" sightings can be

explained by the hypothesis of "Psychological Phenomena"? Yes ___ No X

6. Do you believe that most "Unknown" sightings can be explained by the hypothesis of "Lies or Hoaxes"? Yes ___ No X

7. Do you believe that most "Unknown" sightings can be explained by the hypothesis of "Governmental Secret Weapons"? Yes ___ No X

8. Do you believe that most "Unknown" sightings can be explained by the hypothesis of "Extraterrestrial Space Craft"? Yes X No ___

9. Have you observed a UFO sighting during which you experienced a "loss of time"? If so, are you now aware of the possible events which occurred during that "loss of time" experience? Please describe your impressions of the event and possible association with a UFO observation: Yes. Oct. 25, 1974. Yes thru hyp. from Dr. R. L. Sprinkle. Took a long trip thru space.

10. Are you interested in the possible use of hypnotic techniques to help remember the "loss of time" events? Yes X No ___

IV. UFO Occupants (Please complete the following items.)

1. Have you observed a UFO sighting which included the observation of a humanoid or UFO Occupant? Yes X No ___. If yes, please give the date, location, number of UFO Occupants seen, and your opinion of what you saw: 2 UFO occupants. About 6' tall. Built like man except for hair & face. Went from forehead to neck. Hair was like wheat straw.

2. On the back of this page, please draw a figure or figures to represent the UFO Occupants seen.

3. Have you communicated, directly or indirectly, with UFO Occupants? Yes X No ___. If "yes," have you communicated through writing ___, speech ___, or through "mental communication" X ?

4. If you communicated by speech, could you notice lip movement of the UFO Occupant(s)? Yes X No ___

5. Was the speech conducted in English? Yes X No ___ Other language _____

6. If you communicated by writing, do you have any written material given to you? Yes ___ No X

7. If you communicated through "mental communication," were you told by UFO Occupant(s) how this process was conducted? Yes ___ No X

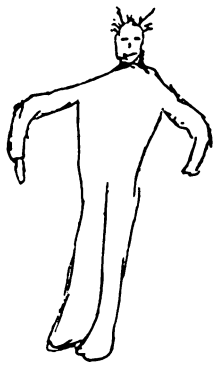
8. Were any apparent devices (microphones, earphones, etc.) used in the communication by UFO Occupant(s)? Yes ___ No X

9. What information did you give? None

10. What information did you receive? They are here for food and exploring.

V. Additional Comments. (Please use this page to describe in more detail, your own psychic impressions of UFO phenomena, including your own impressions of the possible origins, powers, and purposes of UFO Occupants or those who control UFOs.)

See APRO Bulletin. I can't draw that good. They have a pointed stick about 3/4" in dia. to make things disappear & reappear.



Carl Higdon's drawing

Reactions from Other UFO Investigators

I have received comments from other UFO investigators regarding the UFO experience of Carl Higdon. Generally, these comments indicate that the investigators viewed the case as "real" in the sense that Carl experienced an unusual event; however, these investigators also commented on the possibility that Carl was "programmed" to remember the cubicle, the flight, the examination, the conversation with "Ausso One," etc. In other words, these investigators wonder that even if the UFO experience was "real," the information about the experience was false, or distorted, so that the witness--and investigators--might be confused or mislead about the significance of the UFO experience and the purpose of the intelligence behind the UFO phenomenon.

One investigator provided a thoughtful commentary on the Higdon case. I received from Jim and Coral Lorenzen, APRO, an interesting letter dated January 26, 1976, from a biological scientist, Robert J. Hudek, Ph.D., teaching master, Liberal Studies Division, Seneca College of Applied Arts and Technology, Willowdale, Ontario, Canada. In his February 16, 1976, response to my request that his questions be included in this chapter, Dr. Hudek agreed--with the following qualification: "The only request I make of you with respect to the use of my writings is that you do not obscure my view of the UFO phenomenon. I try to maintain, as much as is intellectually and professionally possible, an open mind on the subject of UFOs. I feel that there are many different explanations possible for the phenomenon and at present I do not favour any one of them."

Dr. Hudek's comments and questions are shown on the following pages. I thank him for his interest and commend him for his willingness to discuss the possible biological issues of a strange experience. I wonder what issues could be raised by anthropologists, psychiatrists, psychologists, and sociologists?

COMMENTARY BY ROBERT J. HUDEK ON THE NOVEMBER 2 INTERVIEW*

p237 In regard to the statement that four-wheel drive vehicles pulling his machine out became damaged: was his truck damaged before being pulled out? Was it damaged while being pulled out?

p240 I find it strange that Carl Higdon did not find it an unusual experience to be on board a UFO. I believe this is the conclusion that can be drawn at this point.

p240 Questions from you indicate Carl Higdon ate something. Is this in reference to the pills or something else? If so, what?

p240 How did Carl Higdon know there was a craft and that it lifted off the ground? This could be an

*In the left column above are citations to pages in this book on which one or more symbols [H] appear, marking statements by Carl Higdon to which this commentary refers.

assumption on Carl Higdon's part.

p240 How does he know he saw the earth below? Perhaps he is projecting this as a result of his assumption that he took off. Most people have seen photos of the earth taken from space and this would not be an unusual statement.

p240 The assumption that he went to another planet would follow logically in Carl Higdon's mind if he thought he was in a space ship.

p240 What does Carl Higdon mean by information being taken from him? What was it and how does he know it was taken? Is he perhaps referring to his purported physical examination?

p243 Regarding the disappearance of Carl Higdon's truck, it is not conclusive that the vehicle was dematerialized. Carl Higdon states it disappeared and in view of the statements made by Carl Higdon that the UFO occupants made all other things move by floatation, it is more likely that the truck was floated as well.

p247 If Carl Higdon saw his rifle bullet move through the air it could not have struck with sufficient impact necessary to deform it as shown in APRO photos. A strobe light effect might give the impression of slow motion to the bullet. Did Carl Higdon notice rapidly pulsating light sources about the UFO? Were solid objects nearby that the bullet could have struck such as a rock?

p248 According to Carl Higdon the UFO occupants claim our sun burned them. Carl Higdon in turn claims the lights in the alien environment were intolerable. It seems the alien lights were intense but did not cause burns similar to those obtained from an ultraviolet light source, "it wasn't like sandpaper." Carl Higdon's eyes were affected and he says it was "a soothing burn." It may be that Carl Higdon experienced a thermal effect of intense light. Did any clothed part of Carl Higdon's body feel warm, especially one that had dark garments on it?

The alien's comments about our sun's "burning" properties would not be in reference to sunlight intensity if we follow the preceding reasoning. The

reference would almost certainly have to be to the properties of solar radiation and the fact that our sun provides much ultraviolet light that can cause severe burns. These burns have been experienced by humans determined to obtain rapid suntans.

Another aspect of the ultraviolet region of our solar spectrum is that of its action in vitamin D production in the human. Without this effect the human organism would have to rely solely on a dietary source of vitamin D which would be animal in nature, as plants do not manufacture the vitamin. In this respect fish liver oils and seal, whale and polar bear livers are the richest sources of vitamin D. Animal fat is second-best as a source.

It is interesting to compare the description of Ausso to vitamin D deficient humans: "Rickets may occur at any time during the growing period, but most cases develop before two years of age. ... The first signs are deformities of the skeleton. Craniotabes, or soft spots in the skull that may be found by exploring with the fingertips may appear at about 3 months. There may also be thickening or bossing of the skull at the frontal and parietal bones. ... X-ray photographs may disclose later changes, such as rachetic rosary (protrusion of the ribs into a chain like series of lumps, along the lateral length of the rib cage) and lesions in the radius and ulna (bones of the forearm). Dentition is often delayed. Muscular development is poor and the child does not walk as soon as he should. Classical stigmata of advanced rickets that result from mechanical destortion of the softened bone are: deformities of the skull, deformities of the ribs owing to the pull of the respiratory muscles, such as pulling upward of the upper thorax and an indentation of the ribs at their attachment to the diaphragm, bending of the pelvis, and bow-legs. These bony deformities may persist throughout life" (from Vitamin Manual, published by the Upjohn Company, Kalamazoo, Michigan).

Although I am still sceptical that there is an Ausso I am not willing to dismiss the possibility he or she may have rickets. It is curious that Ausso should be collecting animals for food. These are good sources of vitamin D. It is also odd that Ausso

claims to have no fish on the home planet since these too are excellent sources of vitamin D.

Ultraviolet light could be missing on a planet if the atmosphere is dense or laden with hydrocarbons. If an organism developed in this type of environment it would not need ultraviolet light for its survival. If the forces of evolution worked on Ausso's planet as they are presumed to have worked on ours then he is not in need of ultraviolet light. Perhaps Ausso's fellow beings polluted their environment and now lack dietary sources or physiological sources of vitamin D such as are available to us now. The difficulty in this last line of reasoning is that even with our primitive technology we are able to manufacture synthetic vitamin D and I think a more sophisticated technology such as Ausso's could do likewise. I find it hard to believe that Ausso's society would be technological marvels and biochemical idiots simultaneously. In view of this, I think the comment that Ausso has rickets, although tantalizing, has to be discounted.

p258 In regard to Carl Higdon's statement that he was told he would travel 163,000 "light miles": if this is the same as 163,000 "light years" Carl Higdon would have left our galaxy, which is 100,000 light years in diameter. I think the "light mile" term is something that will remain an enigma. A light year is a measure of distance based on how far light will travel during one earth year. The term "light year" has the property of being particular to earth and is based on a measure of time as understood from earth. An extraterrestrial's light year would be as meaningless to us as map distances posted in ancient Roman "stadia." A "light mile" is even more meaningless and of little use to us unless we know its value in terms of terrestrial equivalencies. It may just be that a light mile is a measure of time rather than distance. If a light year is a measure of distance to us then a light mile would be a measure of time.

p273 The so called "cloud" on Ausso's belt was according to Carl Higdon, a map of the extraterrestrials' planetary land surface. If it was not a continent then this could be similar to the situation on prehistoric earth before continental drift split apart

the hypothetical land mass Gondwanaland to form individual continents. This could indicate that no continental drift ever occurred on Ausso's planet. Perhaps there is no molten core and mantle to facilitate this process. A simpler explanation may be that Ausso is from a particular continent on his planet and only that land mass is habitable and others, for some reason, are not. It might be argued that Ausso was using the "cloud" symbol to indicate his home continent much as we use a flag to demonstrate territoriality.

p275 A lack of eyebrows on Ausso seems related to an environment that is low in ultraviolet light influx. Eyebrows are thought, by some biologists, to have served as protective devices in the past history of man preventing excess ultraviolet light from entering the eye and damaging it. I have already indicated that Ausso's environment might be devoid of ultraviolet light and this would explain why he would have evolved eyebrowless provided the forces of evolution function there as on earth.

p277 Did Carl Higdon state he saw letters on the levers in the supposed vehicle or graphics similar in appearance to the letters he described?

p287 Eating concentrated food would not indicate a reason for the lack of a jaw. The idea of a body part's disappearing or being reduced in size because of disuse does not fit the fundamental theory of evolution as presented by Darwin. The cart is before the horse here. The lack of jaw muscles or a jaw might cause creatures to swallow their food whole or mechanically pulverize it before consuming it.

COMMENTARY BY ROBERT J. HUDEK ON THE NOVEMBER 17 INTERVIEW

p301 It is curious that Carl Higdon does not remember the nature of the letters on the levers but claims to have previously.

p306 There seems to be some confusion in Carl Higdon's memory concerning the gender of people in the alien

building. On page 271 he stated he saw two children and three adults but now this is changed to four youngsters and one adult.

Statements by Carl Higdon to the effect that Ausso is collecting earth animals for food are interesting. This would imply that the alien biochemistry is carbon based and that its stereo chemistry is also identical to ours. Were this not so, our biological materials would be undigestible, non-assimilable and non-transformable in an alien organism.

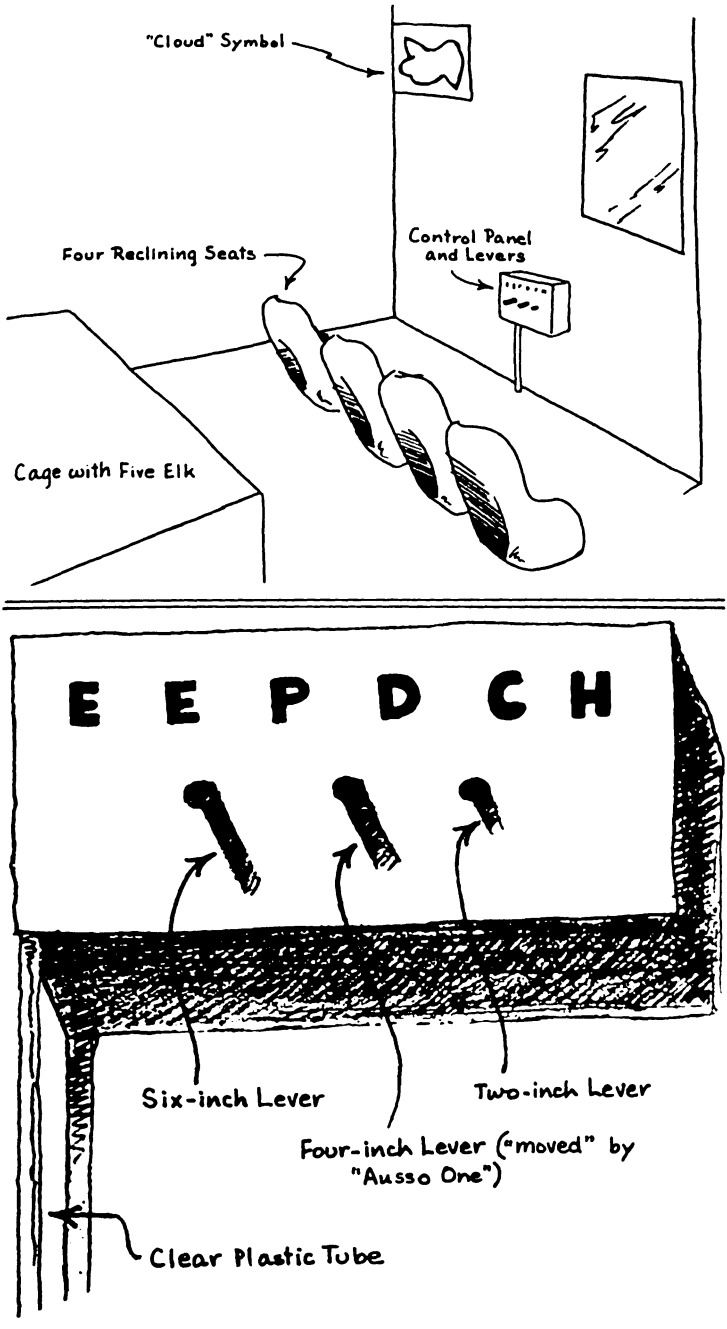
Sketches of Impressions

During hypnotic time regression sessions, Carl described his impressions of the events which occurred during his "loss of time" experience. There seems to be no way of verifying these events; nevertheless, the impressions are of interest because they provide information which is similar to claims of other UFO abductees, and because they provide information which suggests that Carl believes he was examined by persons with an advanced technology.

Carl believes that he, and the five elk, were placed, somehow, in a "cubicle." He cannot account for the observation that he could see the five elk in a cage behind him, while he was strapped in a reclining seat. He wonders if there was a mirror in front of him which allowed him to see the elk. He recalls seeing a symbol on the wall of the "cubicle"; the symbol was the same symbol as worn by "Ausso One" on the apron of his uniform. Carl recalls the impression that there were four reclining seats in the "cubicle," although he cannot account for his observation that the interior space of the "cubicle" was very small, approximately five feet by seven feet in length and width. (See Figure 10.)

Carl described the "control panel" as a box approximately 18 inches long and nine inches wide, with three levers and the letters E E P D C H above the levers. (See Figure 11.) A clear tube, which looked like plastic, was connected from the floor to the "control panel." The middle lever,

Opposite page: top, Fig. 10. Sketch of Carl Higdon's impressions of the first "cubicle." Bottom: Fig. 11. Sketch of his impressions of the control panel in the first cubicle. (Drawings by Nelson R. Sprinkle; used by permission.)


"Cloud" Symbol
Four Reclining Seats
Control Panel and Levers
Cage with Five Elk
E E P D C H
Six-inch Lever
Four-inch Lever ("moved" by "Ausso One")
Two-inch Lever
Clear Plastic Tube

approximately four inches long, was the lever which moved when "Ausso One" pointed his cone-like hand toward the "control panel."

Carl recalls the impression that the "cubicle" moved away from the earth; he stated that the "cubicle" was transparent, and he saw what appeared to be the Earth--looking the size of a basketball--as he looked down through the floor of the "cubicle." Carl believes that he was taken to a "space tower" (see Figure 12), which he describes as a large building which was shaped somewhat like a Christmas tree, with bright illumination. The lights were so bright that he complained about his eyes being hurt.

During the initial hypnosis session, Carl described the impression that he was told that he would be taken back after he complained about the bright lights. However, during the next hypnosis session, Carl recalled the impression that he was taken out of the "cubicle," into the "space tower," into an "elevator," down a long hall, into a large room, and placed upon a platform for a few minutes while a large "shield" or slab came out from the wall. Then, Carl recalled the impression that he was taken from the large room, back down the hallway, into the "elevator." (See Figure 13.) The "elevator" door was three feet wide, eight feet high; the "elevator" appeared to be six feet square in area.

Carl recalled the impression of seeing five people on a platform outside the "Space Tower." The five people looked and dressed like ordinary Earth people, and they seemed to be engaged in friendly conversation. Carl described the persons as a 55- to 60-year-old man (in a nice suit); two young girls, 10 or 11 years old, (one was blonde and the other had brown hair); and two adolescents, one female and one male, about 16 or 17 years old.

Carl described the second "cubicle" as somewhat different from the first "cubicle." The second "cubicle" had only two reclining chairs; and the "control panel" (see Figure 14) had one lever and the letters E P C H □, which appeared to the right of the lever.

Carl recalls the atmosphere in the "cubicles" as "normal"; the temperature was "OK"; the lighting appeared to be "greyish." He also stated that the air appeared to be grey and foggy whenever they moved in or out of a "cubicle."

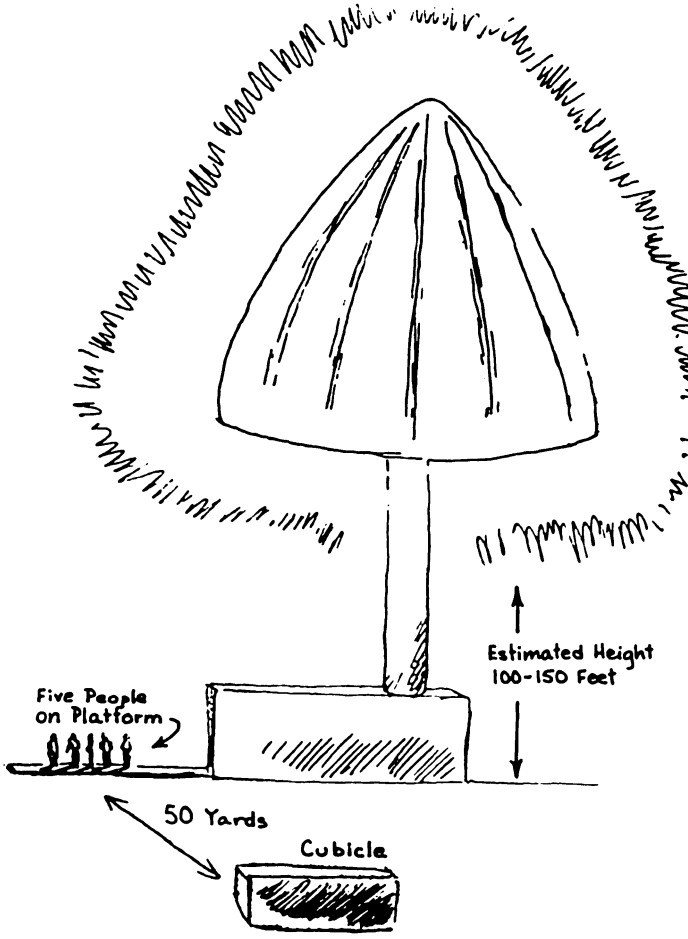


Fig. 12. Sketch of Carl Higdon's impressions of the "space tower." (Drawing by Nelson R. Sprinkle, used by permission.)

Carl has no explanation for the origin of these impressions; however, in his view, there is an obvious interpretation for the impressions: Carl was taken aboard a spacecraft, flown to a space station, examined, and released by intelligent beings who told him that he was not what they

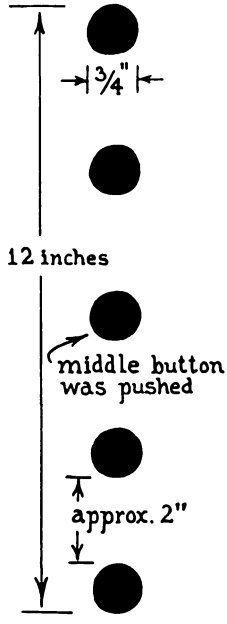


Fig. 13. Sketch of Carl Higdon's impressions about the "elevator buttons" in the space tower.

needed! As Carl tells it, with a smile, and a Texas drawl, "I'm a UFO reject!"

Subsequent Experiences

In October 1976, I visited Carl and his family, accompanying Mr. Junchi (Jim) Yaoi, director of a filming crew from the Nippon Television Network of Tokyo. Mr. Yaoi is a gentleman of high intelligence and perceptivity; he asked Carl to participate in a video taping of a reenactment of the events which occurred on Friday afternoon, October 25, 1974.

When we returned to Rawlins from the Medicine Bow National Forest, Mr. Yaoi asked Carl and me to participate in the filming of a short session of hypnotic regression procedures. Carl quickly relaxed and allowed himself to review the impressions of the UFO experience. He was able to recall more details of the "elevator" in the "Space Tower" and more details of "control panels" of the "cubicles."

At one point, he appeared to be startled; he stated that he recalled being hypnotized and being asked to describe his impressions. Puzzled, I asked him, "Who is the hypnotist?" Carl then smiled, and said, "Oh!, It's Dr. Sprinkle." Apparently, Carl had come "full circle" in his review of the impressions of the UFO experience.

Carl and his family described various experiences which indicated to them that Carl can sense when UFOs are in the vicinity: Carl's right shoulder feels cramped and painful at such times. Carl and Margery described an experience when they sighted an object which had the appearance

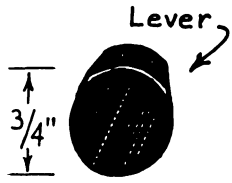
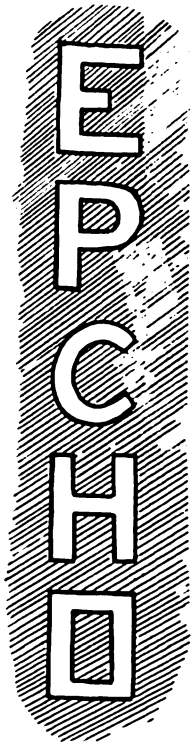


Fig. 14. Sketch of Carl Higdon's impressions of the "control panel" in the second cubicle. (The lever was moved down.)



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of an inverted "top" or an "ice cream cone" which was "upside down."

Mr. Yaoi and his crew continued on their journey around the United States so that they might interview other persons who claim "abduction" and "examination" during UFO experiences.

On March 6, 1977, Carl and Margery Higdon stopped in Laramie as they drove from Denver to Rawlins. They were tired from the stress of a difficult weekend: an airplane flight from Denver to Wichita, Kansas, and a visit to a hospital where Carl's son, Kenneth, was recuperating from a head injury suffered in a traffic accident. Despite their fatigue (they knew that they would arrive in Rawlins around

midnight, and Carl would be rising before 5 a.m.), they wished to tell me of a "vision" which Carl experienced on March 1, 1977. The experience was bothersome to Carl, although he handled his feelings with the courage and strength typical of his personal style.

The experience was described as follows. On the night of the "vision," Carl said that a light followed his vehicle into town. At 12:30 a.m., Tuesday morning, March 1, 1977, Carl felt a terrible pain in his right shoulder and he experienced a "vision" which lasted approximately 30 minutes. Carl knew that his body was in bed, but he also had a strange perception that he simultaneously was in two other locations: 20 miles north of Rawlins, observing a group of pronghorn antelope and a landed "cubicle"; and 12 miles south of Rawlins, observing three deer and a landed "cubicle." Carl experienced "direct communication" with two separate persons (Ausso One and his companion?) in the two separate "cubicles." Carl was shown a "black box" in the vision; the box appeared to be under a cliff on a hillside, 12 or 13 miles south of Rawlins, where there is a stream of water; next, there was no water, and the box was shown in a crevice, with the "cubicle" in front of it. When Carl asked if "they" could help his son, Kenneth, he was told that they would be back in ten days.

Carl expressed puzzlement about the "vision." Was it an experiment in communication? If so, what was the meaning of the "black box"? What was the meaning of showing antelope and deer beside the cubicles? What was the meaning of the message that "they" would be back in ten days?

We discussed these questions and also talked about the sighting of an object (balloon?) over Wichita that morning. The object was shaped like an upside-down teardrop, with black around the edge, orange in the middle area, and a silver strip in the center.

Carl also wondered if something unusual would happen in ten days; however, when I checked with them, Carl and Margery were not able to connect any subsequent experience with the message which occurred during the "vision." The message seems to be one more mystery in a series of mysteries about Carl's alleged UFO experience.

DISCUSSION

Further investigations of Carl Higdon have led me to the same general evaluation which applies to most other UFO witnesses. He is a "normal" person who shows the effects of "abnormal" experiences. Thus, I find it to be difficult to arrive at any definite conclusions about Carl Higdon's alleged UFO experience.

Some questions which arise, of course, are likely to reveal more about the UFO investigator than the UFO percipient. If my hypothesis was that Carl was engaged in a hoax, then I might ask questions (à la Klass) like the following: "Did Carl Higdon hope to win the National Enquirer UFO award?" "Did Carl Higdon know of my interest in UFO reports and fabricate a story which would interest me?" "Did Higdon and I collaborate in hypnosis sessions in an attempt to fool the Polygraph Examiner?"

If my hypothesis was that Carl is a UFO "contactee," then I might ask questions (à la Keel) like the following: "Was Carl contacted because of his psychic abilities?" "Because of his minor American Indian heritage?" "Did he experience a 'physical' abduction or was he programmed to believe that he had been abducted and examined?"

If my hypothesis was that Carl encountered a representative of an extraterrestrial civilization, then I might ask questions (à la McCampbell) like the following: "Were there features of a propulsion system in the cubicle?" "Are the symptoms, described by the physician and Carl, an indication of effects of a power source or a propulsion system?" "Was Carl told that he wasn't what 'they' needed because he had experienced a vasectomy?"

I hope to convey to the reader that I believe that all of these questions are appropriate to ask; the difficulty is in gathering evidence that will tend to support or reject the hypothesis of the investigator.

My own questions are these: What can be concluded from the investigation of the UFO experience of Carl Higdon? Did Carl talk with an alien being? Did he go for a journey in a spaceship to another planet, or space station, and back to Earth? How has the UFO experience influenced Carl's life style?

From the viewpoint of "old science," the alleged encounter can neither be verified or denied. As in most "good cases" of UFO encounters, there is evidence which can be used to accept--or reject, both--the hypothesis that Carl Higdon is telling the truth about his UFO experience.

However, from the viewpoint of "new science" (Kuhn 1962), there is a mass of evidence which indicates that Carl experienced a UFO "display." The evidence is available at several levels of reality (Teilhard de Chardin 1961): physical, biological, psycho-social, and spiritual or psychic levels of reality.

Physical Evidence

The pickup truck, which has been driven by Carl, was found later in a location that suggests, to some observers, that the truck must have been "placed" there. Question: Did Carl make arrangements with someone to use a four-wheel drive vehicle to pull his pickup truck into the new location? Answer: Not known, but doubtful.

The bullet suggests, to some observers, that Carl is telling the truth about his experience. These observers argue that the bullet is "proof" that something unusual happened to Carl. Question: Did Carl make arrangements with someone, or was he able to "smash" the bullet, without scratches, and to extract the lead from the copper casing without structurally changing the copper casing? Answer: Not known, but doubtful.

Biological Evidence

The physiological reactions of the UFO witness (e.g., amnesic condition, redness of the eyes, etc.) are familiar conditions to experienced UFO investigators. Carl displayed symptoms which could not be explained on the basis of traditional medical examination. Questions: Did Carl ingest some unknown drug in order to lose his memory for a two-hour period? Did he cause harm to his eyes so they would show redness? Did he utilize self-suggestions to fake the symptoms of a UFO experience? Answer: Not known, but doubtful.

Psychological Evidence

On the basis of psychological inventories, psychiatric evaluation, and statements from friends and relatives, Carl Higdon is viewed as an honest, quiet-spoken, and open person. On the basis of polygraph examinations, he is viewed as "truthful," except possibly for one topic: his UFO experience! Questions: Did Carl Higdon fabricate and describe a story about a UFO experience? Did he surreptitiously take acting lessons in order to describe the UFO story in a dramatic fashion? Did he change his personal life style in the hope that great financial or social rewards would become available to him? Answer: Not known, but doubtful.

Psychic Evidence

Carl has been viewed as a person of unusual psychic energy. (This observation has been made by various individuals who knew Carl and whom were interviewed by me.) Carl, and others around him, claim that he has experienced premonitions and that he shows some ESP abilities--e.g., "water-witching." After his UFO experience, Carl has sensed, on several occasions, a "signal"; than he, or another member of the family, has gone outside the house and viewed "nocturnal lights." On occasion, he and coworkers have viewed "nocturnal lights" during early morning or late evening travel to and from their work locations; however, some coworkers have been reluctant to discuss these events because of the "strange" (psychic?) conditions which are associated with UFO sightings. Question: Did Carl generate "psychic forces," or cooperate with "spiritual forces," which provided the events of the UFO experience? Answer: not known.

In my opinion, the investigation of the alleged encounter between an alien being and Carl Higdon, on October 25, 1974, has not been successful in establishing the validity of the UFO experience. Who knows, other than Carl Higdon (and "Ausso One"?) whether the encounter occurred?

However, in my opinion, the investigation has been successful in establishing the reliability of the UFO experience. Despite the claims--which may assault our sense of common decency and logic about how the world ought to be run--I believe that E. Carl Higdon, Jr., is describing a "real" experience which occurred to him. (I like and trust

Carl; if my bias is sufficient to distort my evaluation of the available evidence, then other investigators should be consulted in regard to their evaluation of the reliability of the evidence.)

In other words, I believe that the UFO experience of Carl Higdon was a "display"; I believe that Carl is telling the truth about his experience; I believe that Carl's experience was "programmed" so that Carl--and others--might gain subconscious information ("right brain hemispheric processes"); I believe that the "inconclusive" message of the UFO "display" is an integral part of the total phenomenon; I believe that Carl's "cosmic consciousness" or universal awareness is at a higher level than it was prior to his UFO experience.

I do not know if Carl's experience was primarily a physical and biological experience, or whether the events were primarily psychological and psychical experiences--or all of these. I do not know the origin, or purpose, of the intelligence behind the "display" and the "message" of Carl Higdon's UFO experience.

Perhaps, someday, further information may be obtained which will assist us in answering the many questions about UFO experiences.

Until that day, I believe that the UFO phenomenon continues as a many-sided mystery. There are ample puzzles for many investigators, from anthropologists to zoologists. Behavioral scientists, who seek further knowledge of individual and group behaviors, are in an excellent position to contribute to the formal investigation of UFO experiences. May our efforts equal the challenge.

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Chapter 12

WHAT DO UFO DRAWINGS BY ALLEGED EYEWITNESSES AND NON-EYEWITNESSES HAVE IN COMMON?

Richard F. Haines

Perhaps one of the most frequently asked and potentially important questions of an eyewitness of a UFO is, what did it look like? (Elsewhere, I have reviewed the basic reported UFO shapes using single and multiple words [Haines 1977, 1979b] as well as suggested a UFO shape-recognition methodology the investigator may use to obtain more reliable information [Haines 1976].) The perceived shape and details of the phenomenon are fascinating data for analysis. If a consistent body of data on the shape(s) and details of UFOs could be collected under controlled conditions (see Haines 1979a, chapter 5), it would be possible to categorize these features so that correlations could be made with sighting details from other witnesses in the same and other locations. Such categorization and classification could, perhaps, help us understand better what the UFO phenomena have in common, what is their range of differences along various descriptive dimensions, and how various psychosocial factors might influence their perception. Still another reason why it is important to collect reliable UFO shape and detail data is to try to learn more about the true nature of the UFO phenomenon. If a fixed relationship exists between the shape and/or details of the phenomenon and its function or "true" identity, a systematic method for categorizing such information may help uncover it. The data presented here were collected in an attempt to shed more light on these and related factors.

This chapter deals with two basic issues. The first is an attempt to answer the question, do alleged UFO eyewitnesses draw sketches of what they think a UFO looks like differently from people who claim that they have never seen one? Or, put another way, does the exposure to a "real" UFO evidence itself differently in hand drawings than does the exposure to "pictorial," "synthetic," or otherwise "artificial" representations of a UFO? The possibility exists that

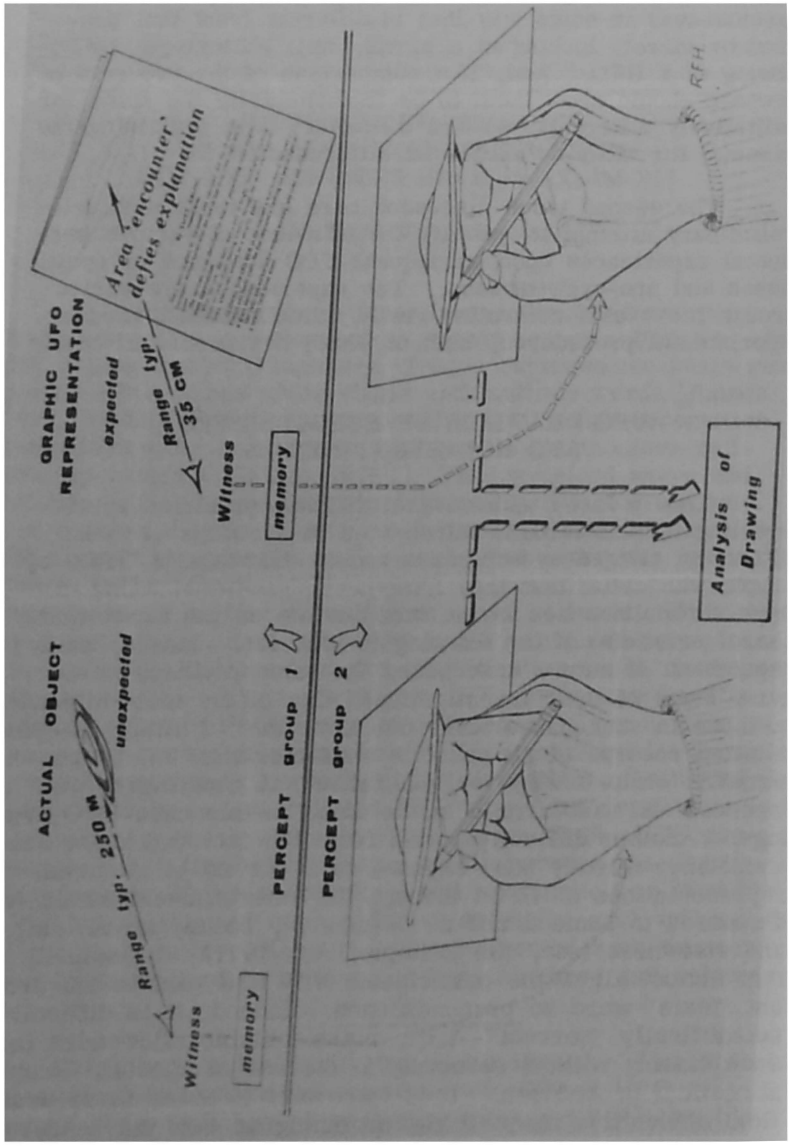
the genuine UFO experience might affect one's perception or consciousness in some way that is different from that produced by merely looking at a movie, still photograph, or drawing of a UFO. And, if a comparison of the two sets of drawings should show them to be fundamentally the same (or qualitatively different), we are then faced with explaining the reason(s) for the similarities or differences.

The second issue discussed here has to do with a preliminary attempt to quantify the influence of various perceptual experiences upon subsequent UFO drawings by eyewitnesses and non-eyewitnesses. The experiences are varied through the use of controlled visual stimuli and repeatable experimental procedures, both of which are described here.

UFO DRAWINGS BY EYEWITNESSES AND NON-EYEWITNESSES

One is faced with several difficult problems in attempting to find reliable differences in drawings of "real" UFOs* by alleged eyewitnesses and in drawings of UFOs by people who claim that they have never seen one. One of these difficulties lies in the fact that we do not know what characteristic(s) of the drawing to look for. Indeed, many phenomena of nature have posed the same problem at an early stage of their investigation. One of the most effective methods in such cases turns out to be that of simply keeping detailed records of all possible characteristics of the phenomenon while looking for qualitative and quantitative differences and similarities in the data, in this case UFO drawings. Another difficulty stems from the fact that most Americans have already been exposed to a variety of pictorial representations of UFOs through the entertainment media (as discussed in some detail in Chapter 3), books, advertising, and elsewhere (see, for example, Ash 1977). It is likely that almost all of the participants who took part in the present "tests" were so preconditioned. Indeed, it is difficult to scientifically "correct"--i.e., make suitable allowances for--such biasing without resorting to the use of special, complex statistical procedures. It is important to make these practical difficulties clear at the beginning so that the reader will

*A "real" UFO is simply defined as any sensory stimulus which cannot be identified by the alleged eyewitness during or after the alleged sighting.


ACTUAL OBJECT
Range typ. 250 M
unexpected
Witness
memory
PERCEPT group 1
PERCEPT group 2
memory
Witness
Range typ. 35 CM
expected
GRAPHIC UFO REPRESENTATION
Area 'encounter' defies explanation
Analysis of Drawing
RFH

not assume that these findings contain more validity or reliability than they actually do. These findings must be viewed only as a preliminary attempt to sort through raw data for whatever patterns or information may lie hidden within.

A large number of complex events take place between the moment one witnesses a UFO and the time one draws a picture of it. Of course the same is true for someone who is exposed to a pictorial representation of a UFO. In order to help sort out the basic events involved in each of these two situations let us consider the various "percept events" that occur. (As is discussed in detail elsewhere [Haines, chapter 1, 1979a], a "percept" is a basic subunit of a complete perception. Many hundreds if not thousands of percepts combine in a continuous, cascading fashion to yield what we call a sensory experience--e.g., a UFO sighting. Some percepts arise in our memory, others through our senses, and still others from physiological reflexes and hormonal interactions with the nervous system, adrenaline-stimulated responses in humans being one.) These "percept events" are illustrated in Figure 1.

The left-hand side of Figure 1 shows the basic events that occur in the case of an "actual" UFO experience. The shape of the UFO phenomenon has no special significance; it could be any other shape. The right-hand side of the figure illustrates the basic events that occur in the case of a typical "artificial" UFO exposure to some form of graphic representation including television, still photograph, and motion pictures. Further comment is called for concerning these percept groups and how they differ for the left and the right sides of the figure.

Percept Group 1. This group of events includes all of the physical, social, and psychological event-related percepts that occur from the instant the UFO (or its graphic representation) is first sighted to the moment when the witness--usually much later--understands and voluntarily agrees to draw a picture of it. His memory of prior experiences, his socially and physiologically conditioned responses related to the subject of UFOs, and other internal factors play a role here as well. The duration of percept group 1 may last

Opposite page: Fig. 1. Diagram illustrating selected factors involved in viewing and then drawing a picture of a UFO. (Drawing by Richard F. Haines.)

from several minutes to many years, depending upon how fast a field investigator arrives to request that a sketch be made of the UFO. It is generally true that the longer this duration is the more chance there is for various distortions of omission and addition to occur.

Considering the fundamental differences within percept group 1 between the eyewitness of an actual UFO and the viewers of an artificial UFO, these differences are usually those of visual range, degree of expectedness, and viewing duration.

Aerial objects are usually seen at distances greater than 250 meters--this includes cases classed as close encounters of the first through third kinds (see Hynek 1972, pp32-33, for details)--while graphic (artificial) UFO representations are usually seen at relatively short ranges of about 35 cm.

Perhaps it is the expectedness dimension of a UFO sighting versus seeing a graphic UFO representation that is most important for our present discussion. By far the majority of reported UFO sightings are unexpected and involve a highly emotional dimension. Even a casual reading of the extensive UFO literature supports this statement. Exposure to television, movie, or printed UFO pictures is not as likely to be unexpected since such exposure is usually under a viewer's control. One usually "goes to see a UFO movie" or "picks up a book on UFOs" voluntarily. Regardless of the nature of the graphic portrayal of the UFO phenomenon shown it is viewed within the psychological context as nonthreatening, under the control of the viewer, and therefore may be considered to be less emotional than the actual UFO encounter.

With regard to the duration that actual UFOs are seen, Special Report 14 of the U. S. Air Force's Project Blue Book reported that after the "not stated" category, the duration category with the largest frequency of sightings (about 22 per cent of the total) was from one to five minutes in duration (for the period 1947 to 1952) (Davidson 1971, p37). In an analysis of 600 cases, Vallee and Vallee (1966, p175) reported that the viewing duration of what they call Type IV cases (that is, "an unusual object moving continuously through the air, regardless of its accelerations, variations in color, or rotations") ranged from seconds to 90 minutes with three peaks, the largest peak (frequency) occurring for viewing

durations of less than one minute, the second largest for those of about 15 minutes, and the third for durations of about 90 minutes. These viewing durations are to be compared with those for most voluntary exposures to artificial UFO representations. In the case of one who may seriously study books on UFOs, a still photograph or a drawing of a UFO might be looked at for many minutes. And science-fiction movies may show some kind of space vehicle for about the same amount of time, although the actual viewing duration is not likely to be as long as it seems to be. Nevertheless, it would be quite unusual to look at a graphic UFO representation for as long as one looks at an actual UFO. Of course there are many instances where this is not true and, indeed, it may turn out not to be entirely true, but then it is not a particularly central element in this part of the discussion. Suffice it to say that the typical viewing duration of an actual UFO sighting is considerably longer than most people realize and probably longer than the typical exposure to an artificial UFO representation. *

Percept Group 2. Referring to the bottom part of Figure 1 having to do with percept group 2, it may be seen that these basic events begin when the eyewitness understands and agrees to comply with an investigator's request to draw what was seen. Percept group 2 ends when the eyewitness has completed the drawing. Some of the more obvious events in this group are the participants' eye-hand coordination, artistic talent, and willingness to comply with the investigator's request; many subtle environmental and social factors also play an important role here as well. For both the actual and the artificial UFO eyewitness, percept group 2 is under the conscious control of the participant. This is the primary distinction from percept group 1 for the witness of an actual UFO. It can be pointed out that this point has been challenged by some writers who maintain that the witness causes the UFO experience to happen. The reader should consult Chapter 3 for a slight variation on this theme.

*It is acknowledged that one may be exposed to a great many different graphic UFO representations over time; the sum total of these exposures would likely be far greater than the viewing duration of a single (typical?) UFO sighting. In such cases one should take into account the level of personal interest a subject has in UFOs and his or her general acceptance level of what constitutes a UFO.

It has been assumed here that the willingness to comply with the "test" instructions is the same for both the actual and the artificial eyewitness. It might be challenged however, on the grounds that someone who has seen a real UFO may feel more reticent to publicly disclose (through his drawing) the bizarre details of what was seen. Some gauge on the possibility that this happens can be obtained in the following tables showing the total number of possible test participants versus the number who complied with the instructions. In those cases where these values could be assessed the "willingness to participate factor" was extremely high (on the order of 90 per cent).

Since all of the present "tests" were administered under similar environmental and procedural conditions to each group, one would not expect these factors to produce a systematic difference in the drawings by eyewitnesses of real and artificial UFOs.

Finally, since the drawings of all test participants were scored by highly trained persons following criteria that were unambiguous (and whose scores were rechecked by independent scorers), one would not expect systematic differences to arise at this stage. Therefore, we are left with the conclusion that any differences found in these two sets of UFO drawings are probably due to those factors having to do with percept group 1. Now let us turn to the tests and the results which were obtained.

Drawing Test Procedure. The following testing procedure was followed for each of the five participant groups described below. Each person was given a 5 by 7 inch white card and a pencil and was seated at a table. At the upper corner of the card were spaces to insert age, sex, occupation, handedness, whether or not they believed they had ever seen a real UFO, and other information. Then the group was asked to "draw what you think a UFO looks like." In only a relatively few cases did a participant not comply with these instructions. * This simple instruction was clear enough that no major clarification was asked for by any group. All testing took place over about a 15-minute period

*Of the 424 participants only 28 (7 per cent) drew obviously ludicrous shapes such as a tea cup on a saucer with protruding spoon or the initials "UFO" sitting on top of a cloud. Only 12 (3 per cent) participants turned in blank cards.

of time in locations which prevented the participants from moving around or talking to one another. This helped prevent the participants from seeing (and being influenced by?) the drawings of other participants (except possibly for their immediate neighbors).

Description of Participant Groups. Test group A consisted of 38 people (28 males, 10 females) who met on November 6, 1976, at Foothill College, Los Altos Hills, California, to discuss the feasibility of starting up an informal UFO study group in the San Francisco Bay area. Most of these individuals were members of various UFO organizations (e.g., the Aerial Phenomena Research Organization, the Center for UFO Studies, the Mutual UFO Network, and the National Investigations Committee on Aerial Phenomena) and presumably possessed some degree of familiarity with the UFO literature including photographic and hand-drawn sketches of UFOs. Twenty-two (58 per cent) of the 38 participants indicated that they "Have Not Seen" a UFO and 16 (42 per cent) indicated that they "Have Seen" a UFO. These participants were asked to indicate the approximate number of years of UFO field investigative experience they had. Table 1 presents this frequency distribution for both the "Have Seen" and the "Have Not Seen" categories. The weighted mean number of years of field investigative experience is about the same for the two groups.

The participants in group A included six teachers, five engineers, five students, four scientists, two electronics technicians, two housewives, two lecturers in physics, two business managers, and one attorney, welfare worker, police officer, computer programmer, spiritual medium, telephone company worker, composer, scientific consultant, student in physics, and secretary. Twenty-five of the 28 males were right-handed and nine of the 10 females were right-handed. All but one (female) participant used their handedness hand with which to draw the UFO sketch.

Test group B consisted of 66 participants (41 males, 25 females) who met on August 6, 1977, at the 1977 International UFO Conference, Hotel San Francisco, San Francisco, California. The 31 persons (47 per cent of the total) (17 males, 14 females) who indicated that they "Have Not Seen" a UFO ranged in investigative experience from none to 31 years (the mean was seven years). The 35 persons (53 per cent of the total) (24 males, 11 females) who claimed they "Have Seen" a UFO ranged in investigative experience from

Table 1

DISTRIBUTION OF YEARS OF FIELD INVESTIGATIVE EXPERIENCE FOR GROUP A

Years of Field Investigative Experience		"Have Not Seen" a UFO	"Have Seen" a UFO
0		8	9
0.1-0.9		4	1
1.0-1.9		4	0
2		1	1
3		2	0
4		0	1
5		2	0
6		0	2
12		0	1
18		1	0
20		0	1
	Total	22	16
	Males	15	13
	Females	7	3
	Mean†	2	3

†The "mean" was calculated by multiplying the number of participants in a given row by the years of experience for that row and adding to the product for all rows and dividing by the total number of participants.

none to 33 years (here the mean was 8.4 years). Not all of the participants complied with the instructions; only 24 males (59 per cent) and 21 females (84 per cent) returned cards with "valid" UFO drawings. (A valid drawing was one which was clearly not ludicrous or not completely blank; no attempt was made to determine why this percentage return was as low as it was.) Considering only the 14 males and 13 females who returned cards (with valid drawings) showing them to be in the "Have Not Seen" category, their mean (and S.D.) number of years of investigative experience was seven (and 8.2) and their mean (and S.D.) age was 36.1 (and 11.8). Considering only the ten males and eight females who returned valid cards showing them to be in the "Have Seen" category, their mean (and S.D.) number of years of investigative experience was 12 (and 10.9) and their mean (and S.D.) age was 34.5 (and 12).

Test group C was made up of 72 persons (46 males,

26 females). This group met on September 29, 1977, at Stanford University for a monthly meeting of the Santa Clara Valley chapter of the American Institute of Architects. Seven (15 per cent) of the 46 males and three (12 per cent) of the 26 females indicated they "Have Seen" a UFO. The males ranged in age from 24 to 84 years (the mean being 45.9 years) and the females from 12 to 81 years (the mean being 41.6 years). The mean age of the "Have Not Seen" group was 43.9 and of the "Have Seen" group, 34.7 years. Eighteen of the males and two of the females were professional architects. The others included six housewives, four contractors, two salespersons, two secretaries, two office managers, two students, a demolition expert, a home engineer, an architectural clerk, an artist, a writer, and a psychotherapist, with the remainder unspecified. All but five males were right-handed and one was ambidexterous. All but one female was right-handed, the other was ambidexterous. Of the 46 males present, 39 (85 per cent) indicated that they "Have Not Seen" a UFO; of the 26 females present, 23 (88 per cent) indicated that they "Have Not Seen" a UFO.

Test group D was composed of 229 participants (132 males, 97 females). All were attendees at the 1978 Space-Con 6 convention held at the Oakland Municipal Auditorium, Oakland, California, on February 5, 1978. The present drawing test was administered at 11 a.m. in the main arena just before a lecture by Jacques Vallee.* Thirty-nine (30 per cent) males and 17 (18 per cent) females returned cards indicating that they "Had Seen" a UFO. Sixty-five (49 per cent) males and 64 (66 per cent) females (thus) indicated that they "Have Not Seen" a UFO. In addition, 26 (20 per cent) males and 14 (14 per cent) females indicated that they were not sure whether they had seen a UFO. Two males and two females turned in blank cards. The males ranged in age from four to 76 (the mean being 21.7 years); the females ranged in age from five to 57 (with the mean 27.1 years). The mean age of the "Have Not Seen" group was 23.4 years and of the "Have Seen" group, 26.6 years. As might be imagined, a wide variety of occupations were listed with no single one predominating.

*I wish to thank Mr. Tom Gates, director of the Space Science Center, Foothill College, Los Altos Hills, California, for administering both this drawing test and the group E drawing test.

Test group E consisted of 65 participants (38 males, 27 females) who also attended the 1978 Space-Con 6 convention (see description for group D). However, these participants were given the drawing test at 4 p. m. in the Ballroom over about a ten-minute period. It is possible that some of these participants also took part in the (group D) drawing test, however, this is not very likely since two other "media" events were scheduled concurrently with this time period and it might be assumed that persons who had already taken the test once would not care to do so a second time. The male participants in group E ranged in age from five to 62 years (the mean was 26. 2); female participants ranged in age from 11 to 56 years (mean, 29. 3). The mean age of the "Have Not Seen" group was 26. 3 years; the "Have Seen" groups' mean age was 30. 9 years. Twelve (32 per cent) males and 4 (44 per cent) females returned cards indicating that they "Had Seen" a UFO. Twenty-one (55 per cent) males and 16 (59 per cent) females indicated that they "Have Not Seen" a UFO. Another four males and six females said that they were "Unsure" if they had ever seen a UFO. One male and one female turned in blank cards. Fourteen males and four females indicated that they were students. No single occupation predominated in either the male or female group.

Several observations are called for regarding the degree to which the five participant groups differed from each other. First, as regards sex, there was a larger percentage of males than females in both the "Have Seen" and the "Have Not Seen" groups with the greatest difference in the "Have Seen" group (see Table 3, rows 2 and 3; column labeled "Grand Mean"). Second, the mean age of the two groups was relatively the same except for group C where the "Have Seen" respondents were, on the average, 9. 2 years younger than the "Have Not Seen" respondents. Third, in terms of group identity, of the grand total of 424 participants in this series of drawing tests, 137 (32 per cent) indicated that they "Have Seen" a UFO. This value is higher than one would expect from administering this test to a randomly drawn sample of Americans. (A Gallup poll released on November 29, 1973, for example, indicated that 11 per cent of its respondents--equivalent to about 15 million Americans--thought that they had seen an unidentified flying object; males were found to be more likely to have seen a UFO than females in that poll.) This finding of a greater than expected "Have Seen" number probably reflects the sampling bias that unavoidably results from giving (these) drawing tests to persons who are attending UFO-related meetings. This explanation

may not be as valid in the case of group C in which there appeared to be a more consistent professional (disciplinary) affiliation than in the other groups.

Test Results. The UFO drawing results from the "Have Not Seen" participants are given in Table 2 separately for the five groups. Likewise, the results from the "Have Seen" participants are given in Table 3. The following points may be made concerning these results. One, people who claim to have seen a UFO draw

- less than one-half as many obviously ludicrous shapes on the average (see row 11 in each table);
- fewer domes on the main body of the shape (see row 21);
- fewer round "openings" around the circumference (see row 25);
- fewer "apertures" of other shapes around the circumference (see row 26);
- fewer "leg"-like lines below the shape (see row 27); and
- fewer markings, symbols, or insignias on the shape (see row 29).

Two, measurements of the maximum, minimum, and mean width/height ratio for both the main body and "dome" (if drawn) were about the same for both the "Have Not Seen" and the "Have Seen" groups. That is, these two measures were not found to be reliable predictors of whether or not one has seen a UFO. And three, measurements of the number of symmetrical and asymmetrical UFO drawings showed that they did not differ appreciably for the "Have Not Seen" or the "Have Seen" group.

Preliminary Conclusions. These limited findings suggest that exposure to a stimulus one considers to be a "real" unidentified flying object tends to constrain the number of details one draws and tends one also not to draw obviously ridiculous shapes. While it is not yet possible to state why this happens it may be due to the nature of the original stimulus either on a purely physical or a more subtle, psychological level. Perhaps the emotional impact of sighting something strange that cannot readily be fit into one's "range of normal experiences" makes us more serious about complying with the present instructions. Maybe people who believe they

Table 2

RESULTS OF FIVE UFO SHAPE DRAWING TESTS BY PERSONS INDICATING THEY HAVE NOT SEEN AN UNIDENTIFIED FLYING OBJECT

	Group						
	A	B	C	D	E	Grand Mean	Total
General Information (number of ~):							
1 Participants	22	31	62	134	38		287
2 Males	15	16	39	67	22	(55%)	159
3 Females	7	15	23	67	16	(45%)	128
4 Valid drawings (%-age)	20 (91)	21 (67)	45 (62)	113 (84)	37 (97)	47 (82)	236
5 Symmetrical drawings	16	19	25	56	24	28 (60%)	140
6 Asymmetrical drawings	4	2	20	57	13	19 (40%)	96
7 Drawings--no defined shape	1	7	9	1	0		18
8 Drawings--one shape	18	20	34	108	34		214
9 Drawings--two shapes	1	0	3	4	0		8
10 Drawings--three or more shapes	1	1	0	1	3		6
11 Ludicrous drawings	1	4	16	2	0		23 (8%)
12 Drawings--side view	11	13	20	83	34	(68.2%)	161
13 Drawings--isometric view	8	7	13	16	0	(18.6%)	44
14 Drawings--indeterminate angle	2	2	5	14	3	(11%)	26
15 Drawings--parallel to "ground"	15	21	27	82	28	(73.3%)	173
Measurements of UFO Main Body:							
16 Mean W/H ratio†	6.4	2.8	4.9	3.8	4.3	4.4	
17 Max. W/H ratio	14.6	4.0	18.6	10.4	13.6	12.2	

Table 2 continued

	A	B	C	D	E	Grand Mean	Total
18 Min. W/H ratio	2.0	1.6	1.3	0.3	1.4	1.3	
19 Max. Width (mm)	162	106	138	135	131	134.4	
20 Min. Width (mm)	30	31	37.5	5.0	20	24.7	
Measurements of Dome (if drawn):							
21 No. of drawings with dome(s)	17	13	25	41	18	23	114
(%-age)	(85)	(62)	(56)	(36)	(49)	(58)	
22 Mean W/H ratio	3.8	1.9	2.3	3.2	4.7	3.2	
23 Max. W/H ratio	7.6	5.7	5.1	6.2	9.8	6.9	
24 Min. W/H ratio	1.6	1.1	0.8	1.5	2.1	1.4	
Miscellaneous Details Drawn (number of ⁓):							
25 Drawings--round "openings"	4	8	13	38	9	(30.5%)	72
26 Drawings--other shaped "openings"	7	6	12	50	22	(41.1%)	97
27 Drawings--thin "legs" below	5	2	9	30	15	(25.8%)	61
28 Drawings--wavy lines from body	2	9	12	29	11	(26.6%)	63
29 Drawings--markings, symbols etc.	0	2	1	5	0	(3.4%)	8

†Width (W) measured across longest dimension of UFO body; height (H) measured at widest point 90° to width line.

Table 3

RESULTS OF FIVE UFO SHAPE DRAWING TESTS BY PERSONS INDICATING THEY HAVE SEEN AN UNIDENTIFIED FLYING OBJECT

	Group						
	A	B	C	D	E	Grand Mean	Total
General Information (number of ~):							
1 Participants	16	36	10	56	19		137
2 Males	13	24	7	39	14	(71%)	97
3 Females	3	12	3	17	5	(29%)	40
4 Valid drawings (%-age)	15 (93)	28 (77)	7 (70)	52 (93)	16 (84)	23.6 (86)	118
5 Symmetrical drawings	13	23	5	22	6	13.8 (58%)	69
6 Asymmetrical drawings	2	5	2	30	10	9.8 (42%)	49
7 Drawings--no defined shape	1	5	3	2	4		15
8 Drawings--one shape	13	22	5	41	12		93
9 Drawings--two shapes	0	2	1	4	3		10
10 Drawings--three or more shapes	2	4	1	7	1		15
11 Ludicrous drawings	0	3	0	0	2	(3.6%)	5
12 Drawings--side view	7	17	4	29	6	(53.3%)	63
13 Drawings--isometric view	4	7	0	3	1	(12.7%)	15
14 Drawings--indeterminate angle	4	7	3	20	9	(36.4%)	43
15 Drawings--parallel to "ground"	8	18	6	18	7	(48.3%)	57
Measurements of UFO Main Body (†see note for Table 2):							
16 Mean W/H ratio	4.6	4.3	8.0	3.6	4.0	4.9	
17 Max. W/H ratio	8.0	11.6	24.7	9.5	11.1	12.9	

Table 3 continued

	A	B	C	D	E	Grand Mean	Total
18 Min. W/H ratio	1.0	1.0	2.1	1.5	1.3	1.4	
19 Max. width (mm)	168	197	117	140	113	147.0	
20 Min. width (mm)	18	13	28	18	35	22.4	
Measurements of Dome (if drawn):							
21 No. of drawings with dome(s)	7	8	1	10	3	5.8	34
(%-age)	(46)	(28)	(14)	(19)	(19)	(24.5)	
22 Mean W/H ratio	6.9	3.5	7.6	3.3	4.5	5.2	
23 Max. W/H ratio	17.4	4.4	note 2	6.1	8.3	9.1	
24 Min. W/H ratio	2.4	1.1	note 2	1.4	2.0	1.7	
Miscellaneous Details Drawn (number of ~):							
25 Drawings--round "openings"	1	11	1	13	4	(25.4%)	30
26 Drawings--other shaped "openings"	5	7	0	20	3	(30%)	35
27 Drawings--thin "legs" below	0	5	0	1	1	(6%)	7
28 Drawings--wavy lines from body	5	8	3	10	8	(28.8%)	34
29 Drawings--markings, symbols etc.	0	1	0	1	0	(1.7%)	2

have seen a "real" UFO have had to emotionally "work through" the social and psychological conflicts that are discussed elsewhere in this book. Perhaps the fact that these people have had to face up to the possibility of the reality of unexpected aerial phenomena has made them less willing to draw (in their sketches) what is now considered by them to be extraneous detail. Unfortunately, it is not possible to

tell whether the drawings of the "Have Seen" group represent the phenomena they witnessed. Future work should attempt to determine the degree of correspondence between a drawing of a UFO which a person has seen and the same person's drawing of a "typical" (generic) UFO in order to assess which of the two may be influencing (i. e., serving as the dominant prototype or original stimulus) the other.

The finding that the basic dimensional characteristics of UFO drawings by the "Have Not Seen" and the "Have Seen" groups are not different may suggest that we carry with us a general idea or visual percept of what a UFO should look like and that our actual exposure to the phenomenon does not influence this "protosymbol" in any significant fashion (see Haines 1978).

INFLUENCE OF PRIOR PERCEPTUAL EXPERIENCES ON UFO DRAWINGS

Whereas for the data presented in the first part of this chapter there was no practical way to control for the many differences in perceptual experiences the participants had had before drawing their sketches, this part of the chapter attempts to discover how certain "controlled" prior perceptual experiences influence subsequent drawings. Three subjects are discussed, which have to do with shape-drawing accuracy of briefly presented regular and irregular shapes (i. e., familiar and unfamiliar shapes), drawing-reproduction accuracy of a UFO drawing presented for a reasonably long period of time, and shape variations resulting from one's being provided only a written description of a UFO.

Shape-Drawing Accuracy of Briefly Presented Regular and Irregular Shapes. Many UFOs are described as being rather amorphous and irregularly shaped. Indeed, about 40 per cent of all participants in the drawing tests described in the earlier part of this chapter drew asymmetric shapes regardless of whether they had seen a UFO. The irregular forms (i. e., visual stimuli) presented in this investigation may be thought of as representing a nighttime UFO while the regular, geometric, familiar forms may be thought of as experimental control drawings with which to assess the participant's ability to produce reasonably accurate drawings, to follow the testing instructions, and to visually perceive the stimuli projected on the screen in the first place.

Drawing Test Procedure. This drawing exercise was given to 30 adults on September 18, 1976, at Foothill College, Los Altos Hills, California; this group of participants were not already involved in UFO studies of any kind. The group was divided into two testing groups of 15 persons each. Group 1 was administered the shape-drawing test while group 2 was given an illustrated (35mm slide) lecture on UFOs at the same time by Tom Gates, director, Space Sciences Center at the college (and a well-known lecturer on the subject who has made hundreds of illustrated presentations). Each of these sessions lasted 21 minutes. Then the two groups switched places in order to make it possible to determine the influence of the lecture on the shape drawings that were elicited by identical visual stimulus slides. The second test session lasted 20 minutes.

Each group was asked to complete a short information form before beginning the shape-drawing test. This form included the following questions: (1) approximate frequency of reading articles about UFOs (number each year), (2) have you ever seen a UFO? (yes, no, unsure), (3) approximate frequency of reading anything on psychic or paranormal phenomena (never, almost never, occasionally, frequently, very often), (4) estimate the frequency of looking up into the sky to try to see a UFO (same as for question 3), (5) do you consider yourself to be open-minded about what UFOs might represent? (yes, no, unsure), and (6) do you believe in a supernatural being, power, energy source or wisdom often referred to as God? (yes, no). In addition to these questions, the participant's age, sex, and handedness were also requested. As Table 4 shows, the two participant groups were matched quite closely on these questions.

Test Results. The mean results are presented in Table 5 along with an illustration of the stimulus, its presentation duration, and relative frontal area. Each of the three irregular shapes was seen as a bright area on a dark background (white diffuse projection screen). The three irregular stimuli were made by cutting the stimulus form out of an opaque 35mm slide and projecting it upon a large screen which was viewed at a distance of approximately nine feet by all participants.

Referring to the mean results of Table 5 it can be seen that most of the dimensional measurements made on these drawings were larger (not statistically significant, however) for group 1. Use of a specially-prepared drawing

Table 4

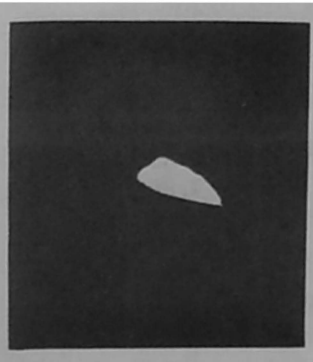
MEAN RESULTS OF QUESTIONNAIRE
FOR EACH TEST GROUP[a]
(N = 15 per group)

	Age	Sex	Handedness	Question						
				1	2[b]	3	4	5	6	
Group I	38.7	8 males	13 right	3.3	1.3	3.0	1.7	2.0	1.4	Mean
	8.8	7 females	2 left	0.5	0.5	0.8	1.0	0.0	0.8	S. D.
Group II	36.9	7 males	15 right	3.3	3.0	3.5	2.3	1.9	1.9	Mean
	8.2	8 females	0 left	1.0	0.5	1.5	1.3	0.3	0.3	S. D.

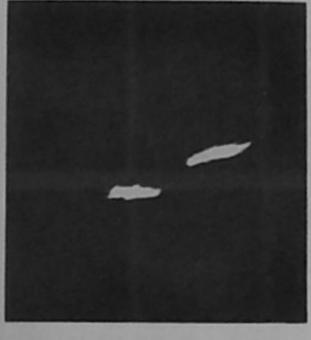
[a]The mean scores are based upon the following points assigned to these questions: no 1, yes 2, unsure 0, never 1, almost never 2, occasionally 3, frequently 4, very often 5.

[b]One person in group 1 thought he had seen a UFO and ten more were unsure. In comparison, no one in group 2 thought he had seen a UFO and nine others were unsure.

Table 5. MEAN RESULTS OF PRESENTING IRREGULAR (UNFAMILIAR) SHAPED STIMULI



Viewing duration: 4 sec
Relative area: 2.84 units



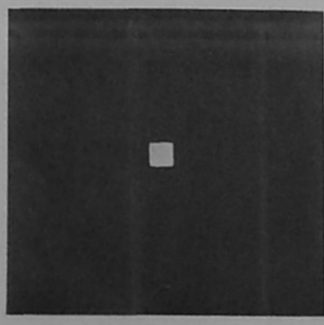
Viewing duration: 1 sec
Relative area: 2.15 units

Viewing duration: 8 sec
Relative area: 0.44 units

Measures made	Group I	Group II
1 Maximum length (mm)		
mean	26.27	23.53
S.D.	11.86	5.55
2 Maximum width (mm)		
mean	11.20	10.87
S.D.	3.30	3.20
3 Long. axis angle with horizon (deg.)		
mean	32	27.67
S.D.	13.47	7.97
4 Drawing approximately symmetrical?		
yes	6	12
no	9	3
1 Width of right area (mm)		
mean	19.33	18.80
S.D.	6.91	4.84
2 Height of right area (mm)		
mean	4.73	5.13
S.D.	1.49	2.26
3 Distance between two areas (mm)		
mean	6.93	6.33
S.D.	4.86	3.06
4 Width of left mean area (mm)		
mean	18.6	18.47
S.D.	7.25	4.79
5 Height of left area (mm)		
mean	4.80	4.60
S.D.	1.66	1.45
6 Right area angle with horiz. (deg.)		
mean	17.73	20.53
S.D.	9.03	14.17
7 Left area angle with horiz. (deg.)		
mean	14.67	9.20
S.D.	12.9	9.65
8 Both areas perceived and drawn		
yes	15	15
no	0	0
1 Distance from left area and lowest area (mm)		
mean	34.27	34.93
S.D.	13.62	10.94
2 Distance from left area and upper-right area		
mean	34.40	38.20
S.D.	11.76	9.89
3 Number (N) of areas drawn		
N=3	9	8
N=4	1	4
N=5	3	1
N=6	1	2
N=7	1	0

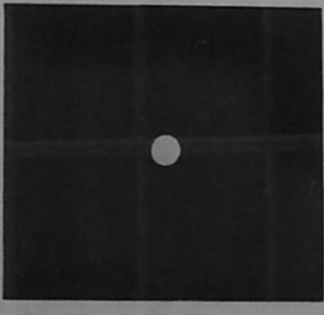
Table 6

MEAN RESULTS OF PRESENTING REGULAR (FAMILIAR) SHAPED STIMULI



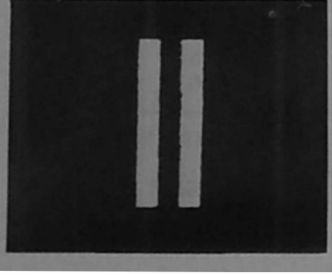
Viewing duration: 0.2 sec
Relative area: 1.0 unit

Measures made		Group I	Group II
1	Width (mm)		
	mean	8.33	7.93
	S.D.	1.80	1.53
2	Height (mm)		
	mean	8.60	7.60
	S.D.	2.47	2.20
3	Contrast correct?		
	yes	14	13
	no	0	0
	unclear	1	2
4	Orientation correct?		
	yes	15	14
	no	0	1



Viewing duration: 0.2 sec
Relative area: 1.0 unit

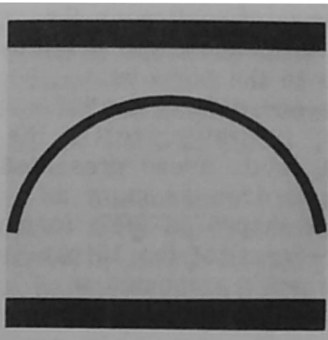
1	Diameter (mm)		
	mean	10.50	9.21
	S.D.	4.16	2.91
2	Is contrast correct?		
	yes	12	10
	no	1	0
	unclear	2	5



Viewing duration: 0.2 sec
Relative area: 11.37 units

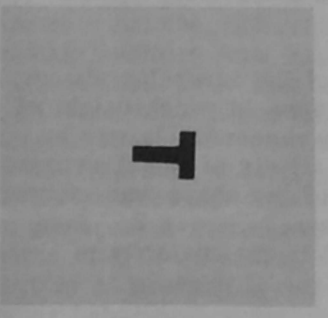
1	Height of bars (mm)		
	mean	39.67	32.00
	S.D.	17.0	7.76
2	Width of bars (mm)		
	mean	4.8	4.0
	S.D.	2.24	2.55
3	Width of dark area between bars (mm)		
	mean	6.33	4.67
	S.D.	3.18	2.55
4	Gravitational orientation correct?		
	yes	15	15
	no	0	0

Table 6 continued



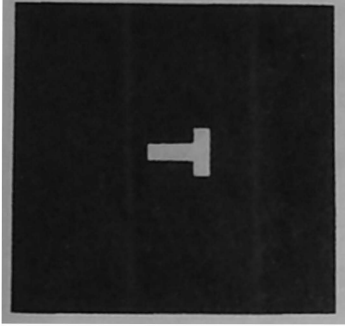
Viewing duration: 120 sec
Relative area: 13 units

Measures made		Group I	Group II
1	Total width of pencil drawing (mm)		
	mean	121.6	128.3
	S.D.	25.8	14.4
2	Width of curved arc (mm)		
	mean	5.86	5.27
	S.D.	1.41	1.75
3	Gravitational orientation correct?		
	yes	15	15
	no	0	0



Viewing duration: 2 sec
Relative area: 4.06 units

1	Max. width of T (mm)		
	mean	23.40	21.53
	S.D.	5.97	4.64
2	Total height of T (mm)		
	mean	20.87	19.80
	S.D.	5.48	5.25
3	Width of horiz. stem (mm)		
	mean	5.80	5.27
	S.D.	1.66	1.44
4	Overall orientation correct?		
	yes	15	15
	no	0	0



Viewing duration: 2 sec
Relative area: 4.56 units

1	Max. width of T (mm)		
	mean	26.33	21.93
	S.D.	8.00	5.87
2	Total height of T (mm)		
	mean	24.67	22.80
	S.D.	6.95	6.07
3	Width of horiz. stem (mm)		
	mean	6.93	6.07
	S.D.	2.09	1.62
4	Overall orientation correct?		
	yes	15	15
	no	0	0

sheet with a rectangular outline the same proportion as the 35mm stimulus slide made it possible to measure the orientation angles of the shape drawn relative to the horizontal. These angles varied over a wide range and did not exhibit any group-related trend. Interestingly, in drawing test C the visual stimulus consisted of five small, white areas presented for eight seconds. Still, the participants drew as many as seven (and most drew only three) small shapes on their forms. Only three (20 per cent) and one (7 per cent) of the 15 participants drew the correct number of shapes presented in groups 1 and 2, respectively.

The results of exposing the six regular, familiar shapes are presented in Table 6. These shapes were presented with the irregular shapes in a random order which was different for each group.

As was found in the drawings of the irregular shapes, all four of the drawings of regular shapes in which height of the drawing was measured were drawn somewhat larger by group 1 than by group 2. Likewise, all six of the drawings of regular shapes in which the width of the shape was measured were drawn larger by group 1 than by group 2. Both groups indicated the correct contrast* in the majority of drawings.

Part E and F of Table 5 give the results of presenting the same stimulus shape, size, and orientation but with opposite contrast. It may be seen that the positive contrast shape i. e., part F was drawn larger by both groups than was its negative contrast counterpart. This was true for all of the dimensions measured. This is, no doubt, a result of the "irradiation phenomenon" which is a psychophysiological effect within the human visual system whereby brighter areas tend to enlarge perceptually due to light scatter within the refractive media of the eye (von Helmholtz 1962; Haines 1979a, chapter 15).

Amid the series of three irregular and six regularly-shaped stimuli was a stimulus presentation where no shape was presented. This condition was created by exposing only

*A positive contrast is defined as a lighter (brighter) figure than its background; a negative contrast is the reverse. Shading was supposed to be used by the participants to indicate the darker portion of a drawing.

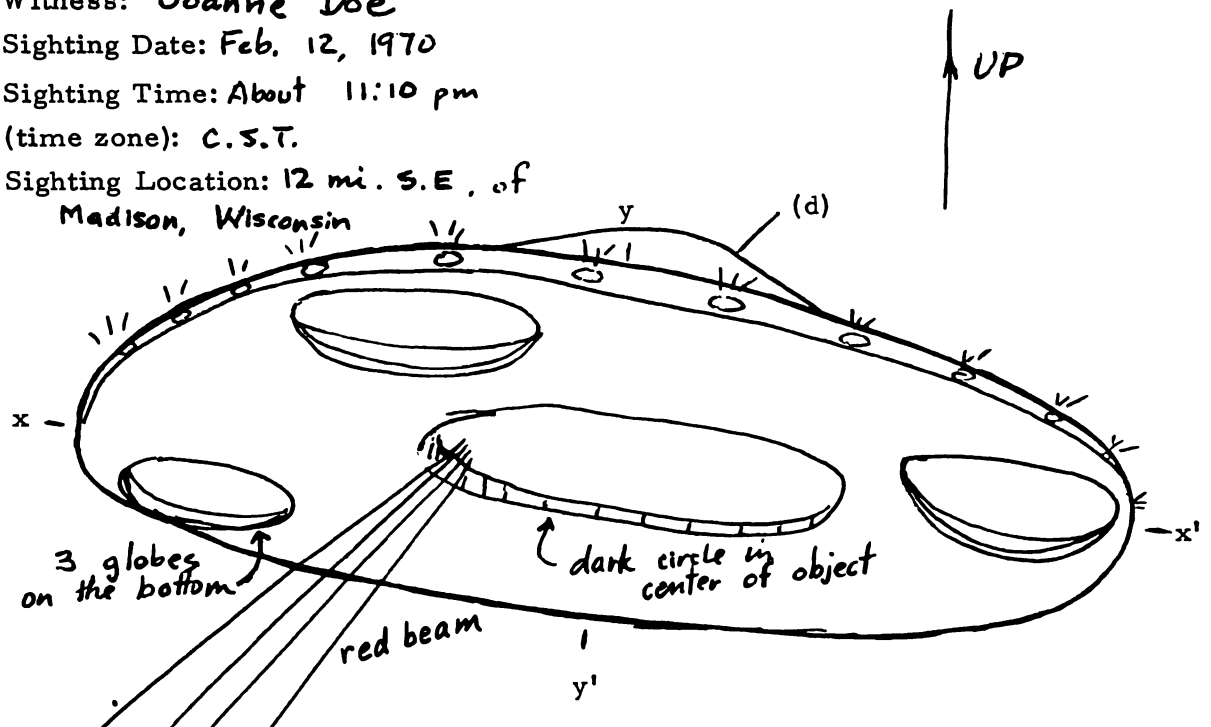
a 35mm cardboard (slide) frame for 0.2 second. All 30 participants correctly drew a rectangular outline with rounded corners of about the correct proportions oriented horizontally. Several participants wrote that they did not see anything during the flash of light.

Discussion. While the dimensions of the sketches drawn by group 1 were not statistically larger than those drawn by group 2, the trend is obvious. Why should the fact of having seen and listened to a lecture on UFOs, including numerous slides of alleged UFOs, have caused these participants (viz., group 2) to draw smaller drawings when all of the other testing conditions were the same as for group 1? Since the test environment and procedures were the same and the two groups were formed on a volunteer basis, one could assume that the differences found should originate from the visual, auditory (and related) experiences received during the UFO lecture.* Is this finding similar to that reported in part 1 of this chapter where prior (alleged) UFO exposure acts to constrain the number and variety of details drawn? Would exposure only to graphic (pictorial) representations of UFOs produce the same size change effect or would exposure to pictures of anything (or to verbal text only) have had the same effect? Clearly, more research is called for; one objective of presenting data such as these is to illustrate how other behavioral scientists may become actively involved in UFO studies without the need for large expenditures of time or money.

Reproduction Accuracy of a UFO Drawing Presented for a Prolonged Period of Time. It might be argued that, aside from minor differences in onels UFO drawing caused by an inability to control one's arm and hand muscles, or one's use of artistic techniques such as shading, perspective, isometric principles, etc., one should be able to make an accurate sketch of another drawing if given enough time. The primary objective of this study was to find out if this was true.

*A careful comparison of response differences presented in Table 3 does suggest some minor variations in the background experiences of these participants with regard to UFO phenomena: compare questions 2, 3, and 4 for each test group. The possibility exists that a biasing factor due to these differences may have produced the differences noted.

Witness: Joanne Doe
Sighting Date: Feb. 12, 1970
Sighting Time: About 11:10 pm
(time zone): C.S.T.
Sighting Location: 12 mi. S.E. of Madison, Wisconsin



Since UFO field investigators are increasingly aware of the need to have eyewitnesses draw what was seen, information such as is presented here should be valuable in understanding better just how accurate people are in reproducing shapes and details long after a sighting is over. If substantial differences of omission, distortion, addition, rotation, and the like are found in drawings produced while viewing a picture of a UFO for a prolonged period of time one might well ask what other reproduction differences would be expected long after the sighting is over?

Drawing Test Procedure. The same group of 30 volunteers who took part in the previous drawing test took part in this test. The visual stimulus consisted of a black line drawing of a mock UFO viewed on a white (projection screen) background. Figure 2 shows this stimulus in its original orientation with respect to gravity--as it appeared on the screen. It was shown to each group for as long as each group desired. Group 1 requested a seven-minute and group 2 a six-minute viewing period. This drawing was novel; it had not been seen by any participant before (it had been prepared by the author for other purposes--see Haines 1976). When projected on the screen, the maximum horizontal dimension was 122 cm (48 in) and the maximum vertical dimension was 44.5 cm (17.5 in). At an average viewing distance of 275 cm (nine feet), the drawing subtended an angular width of just under 24° arc and an angular height of 9.2° arc.

Test Results. The mean test results for each of the two test groups described in the previous section are given in Table 7. The actual (measured) width/height ratio of the main body of this UFO drawing is 3.05 to 1. Both participant groups drew it with a somewhat smaller ratio, however. If the slight bulge on top is assumed to be a part of the main body of the drawing the width/height ratio is reduced to 2.74. Three participants' drawings have been reproduced in Figure 3 in order to illustrate some of the kinds of distortions produced.

Referring to the three drawings in Figure 3 (which are fairly representative of all 30 drawings), one finds such typical reproduction characteristics as less evenness of lines, less line-to-line closure and more angular overlap, a wide range of orientation angles (relative to the arrow which was

Opposite page: Fig. 2. Stimulus used in the reproduction accuracy test.

Table 7

Mean Results of Reproduction Accuracy Test Using the Hypothetical UFO Drawing Shown in Figure 2

Measure		Group I	Group II
1 Width/height ratio	Mean	2.01	2.04
	S.D.	0.46	0.42
2 No. of circles drawn around circumference	Mean	11.13	10.73
	S.D.	1.06	1.33

supposed to point upward), incorrect directions of protruding lines, distorted dimensions of such details as the size and proportions of the dome on top, and the oval circles around the circumference of the object.

Discussion. One purpose of conducting this test was to determine how accurate these participants could be in copying a line drawing of a UFO, given as much time as deemed necessary. Rather large errors of the kind discussed above were found. If the true nature of the UFO phenomenon is, in fact, a "flying machine" of some sort with various details present, then eyewitness drawings of such "craft" should be done as accurately as possible. On the other hand, if the UFO phenomenon is some natural phenomenon such as a plasma-like luminous blob which may or may not change its physical form over time (as proposed by Persinger in the following chapter), then it probably is not as important to require eyewitness drawings of such a phenomenon to be particularly accurate. For, if two or more eyewitnesses of the same visual phenomenon independently draw virtually identical drawings, then it becomes easier to accept the fact(s) that are implied by the various details drawn. Until we know the true identity of the UFO phenomenon, then, it would seem wisest to continue to strive for as accurate eyewitness drawings as possible.

If the present study has suggested that hand-made copies of a UFO shape may not correspond to the original stimulus (object?), what can be said about the potential influence of a verbal description of a UFO upon a drawing of what it is said to look like? This is the subject of the last section of this chapter.

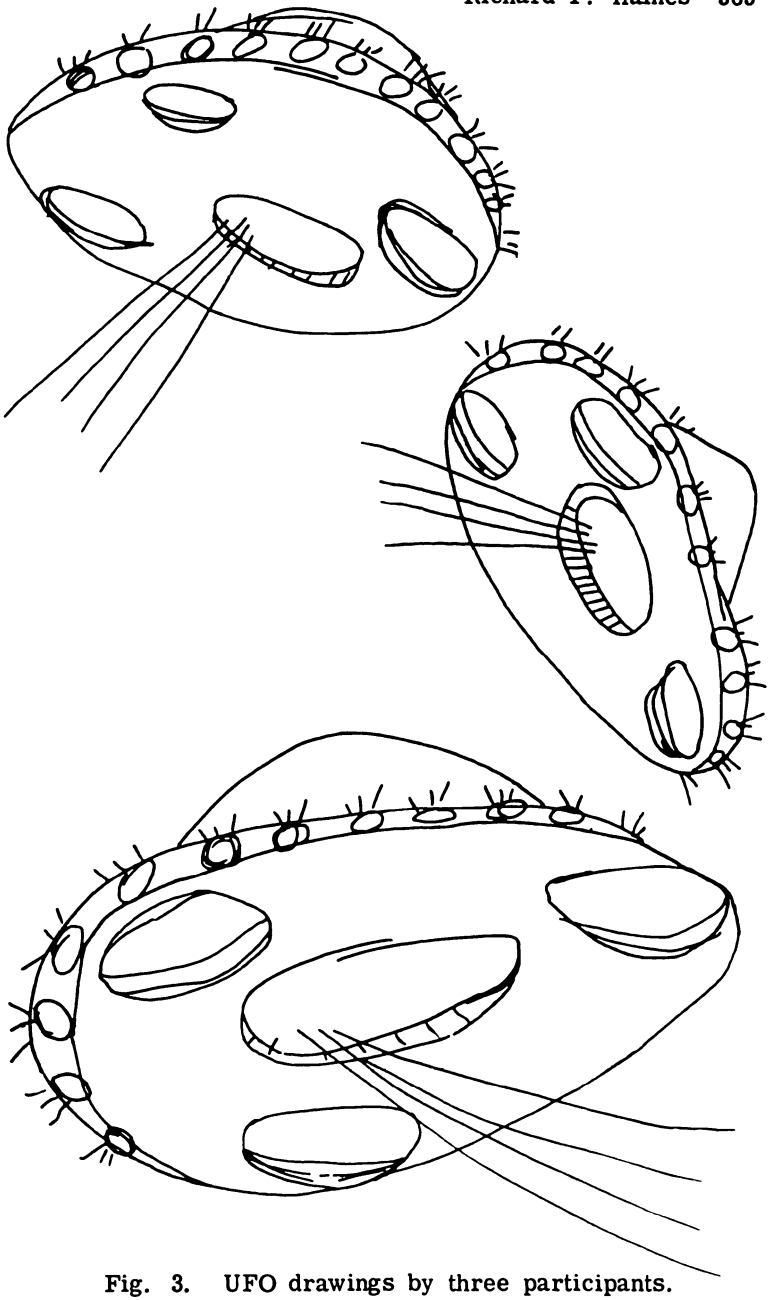


Fig. 3. UFO drawings by three participants.

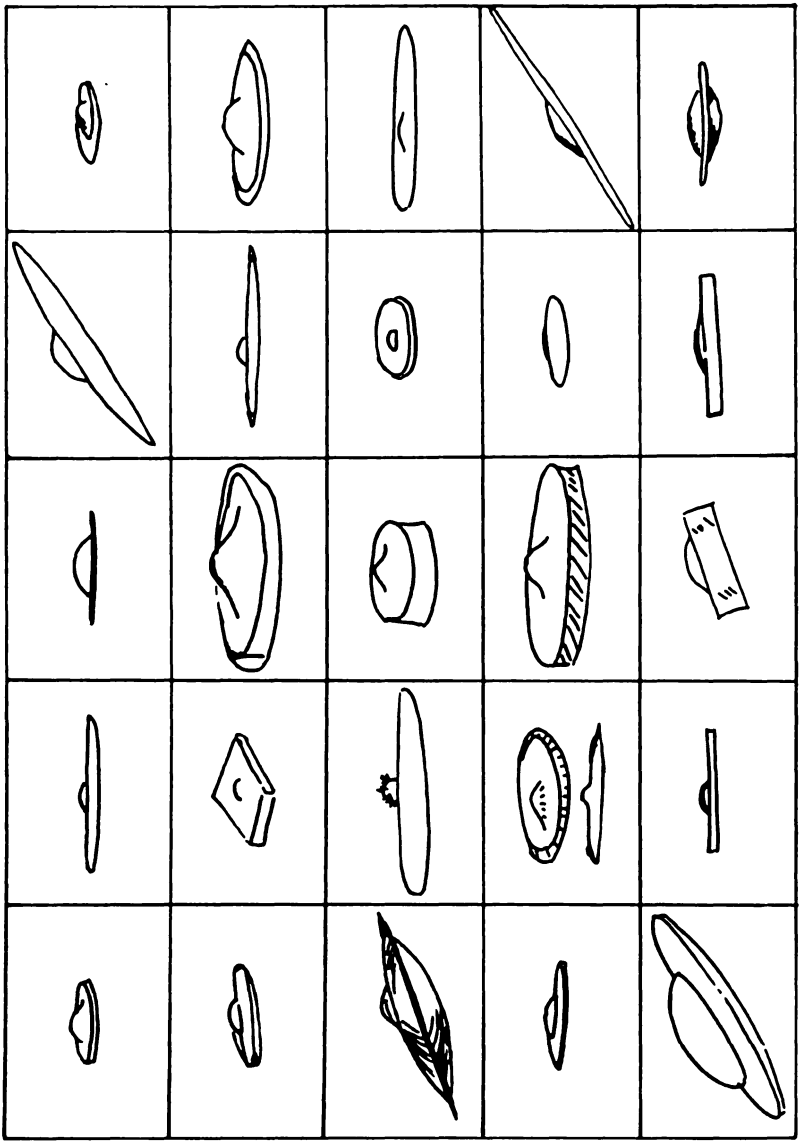


Fig. 4 (lengthwise). UFO drawings based upon written description of a UFO (set 1).

Shape Variations Produced When One Is Provided Only a Written Description of a UFO. Most UFO field investigative forms request that witnesses draw what they saw. Nevertheless, many reports are turned in without such drawings. Those who wish to analyze these UFO sightings must be content with the written description of the phenomenon. One might well ask just how useful are such descriptions? What can be learned from the text about the actual nature of the anomalous stimulus, i.e., does the mere act of describing the UFO experience in words rather than visual images somehow add distortions (additions, deletions, modifications)? The present study was conducted to try to learn more about this matter.

Test Procedure. This test was conducted during a UFO investigator's workshop held on April 3-4, 1976, at Foothill College, California, in which 31 adults took part. Five participants were women. The participants ranged in age from 19 to 68 (the mean being 39); 21 (68 per cent) indicated that they had some prior field investigative experience, the mean being 3.8 years. Three participants could be considered pioneers in the field of UFO studies for they possessed 16, 20, and 20 years of investigative experience. (The number of years of UFO investigative experience dropped to 3.6 years when these three individuals were deleted from the grand total.)

All UFO drawings were done on prepared sheets on which a typed description of an actual UFO sighting was included. The participants were tested as a group and were given three minutes to read the general instructions and then allowed to ask questions concerning what was required of them. They were asked not to look at each other's drawings during testing. After the first ten-minute drawing test was over, a second drawing sheet (with a second written UFO description) was handed out and a second UFO shape drawn during the second ten-minute period. The descriptive text for the first drawing is given below:

> 'It looked like a flat rim around the sides, and there was a little bump on top. It was shiny like metal or something, like the color of a bumper. It didn't make any noise.' Question [by the investigator]: 'So it was a hundred feet or a couple hundred feet or something like that?' Answer: 'yeah' [Salisbury 1974, sighting no. 22, pp36-37].

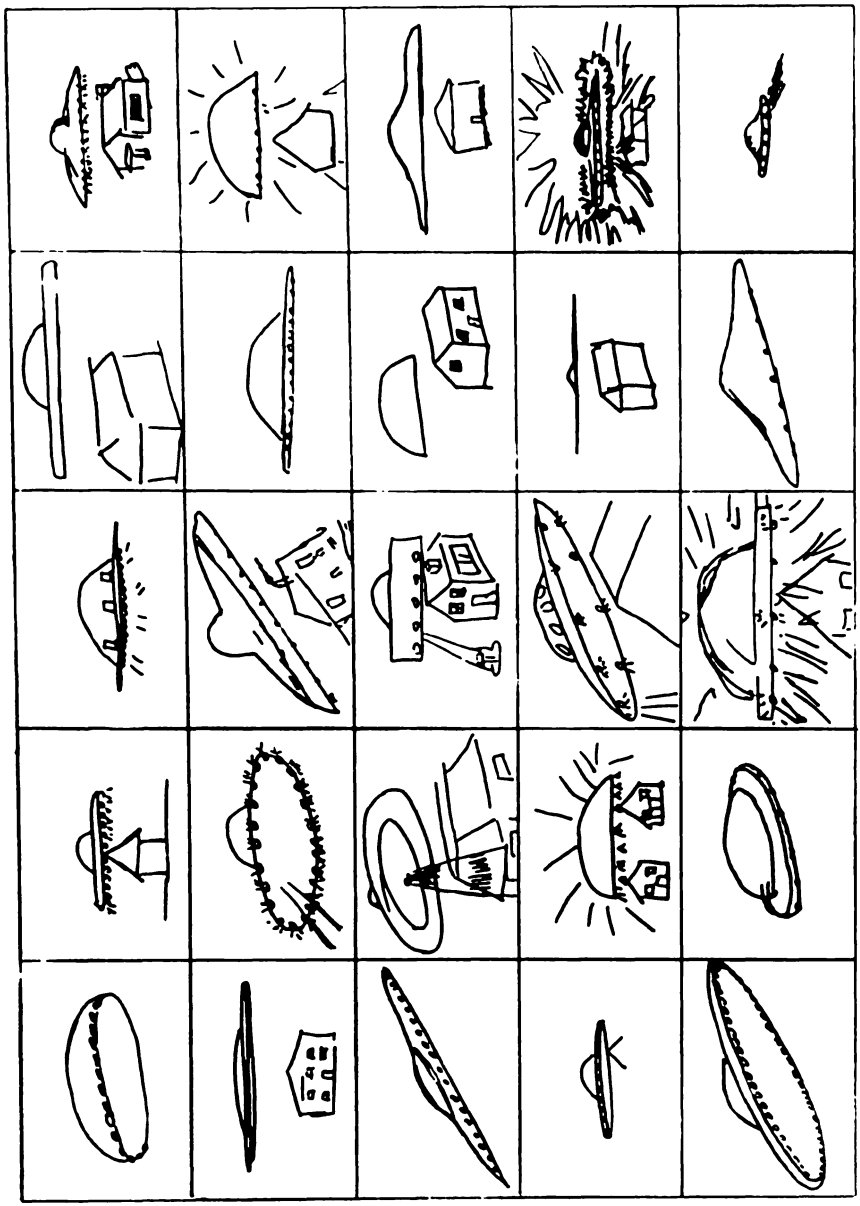


Fig. 5 (lengthwise). UFO drawings based upon written description of a UFO (set 2).

This passage was chosen deliberately since it provided a fairly ambiguous shape description while, at the same time, it represented (in the minds of all participants) an actual UFO sighting. It may be noted that there is no reference to any basic outline shape or other substantive details.

Results. The drawings turned in by 24 participants are portrayed in Figure 4. Each of the original drawings was reduced by the same amount using approximately the same line weight and details as provided by the participants' original drawings. Some of the original drawings were too large to fit horizontally into a box and were rotated diagonally so as to fit. The drawing in the lower right corner was made by the eyewitness himself.

The text used for the second drawing test is presented below. Analysis of the results of both sets of drawings follows.

> ... they ran outside in time to see a large object, flat on the bottom with a dome on top ... hovering over the house, almost appearing to balance on top of the house. It was twice as large as the small house. They heard a humming noise, and lights around the bottom edge of the object were blinking on and off, giving a predominantly red impression, but also appearing at times to be green and yellow.... 'It was too bright. Every time you look at it, it kind of hurts your eyes.' No occupants were seen inside the dome.... The 'red beam' that only illuminates things it touches was described [ibid., sighting no. 16, p23].

Results. Figure 5 presents the drawings evoked by the above passage by the same 24 participants as shown in Figure 4 (drawn in the same order). Also, the drawing in the lower right-hand corner was made by the eyewitness, a girl in high school.

Analysis and Discussion. These drawings are analyzed and discussed with respect to three topics: (1) degree to which the textual details were included in the drawings, (2) width/height ratio of the basic shape drawn by each participant, and (3) width/height ratio of the bump (dome?) drawn (if any).

In the process of analyzing UFO reports it would be

very useful to know that the field investigator had accurately transcribed the details of the eyewitness's experience onto the recording form. Of course this is impossible to determine without having a second investigator present to verify (cross check) the transcription accuracy of the first investigator. Nevertheless, the results presented here give some insights about this important matter. For we may ask the question, did these participants--many of whom were active UFO field investigators--faithfully include every detail that was presented to them in the written text?

With respect to the first UFO sighting (see Figure 4), only 18 (75 per cent) of these 24 drawings included a "flat rim" that was described in the text. Three participants (12.5 per cent) said that they felt there was insufficient information with which to draw anything and simply left the drawing area blank. The second written text (see Figure 5) contained five separate details. Most of the participants (96 per cent) correctly drew a "flat bottom," 80 per cent drew a "bump" (dome?) which they all located on top of the object, 73 per cent drew some sort of indication of the "lights" around the bottom edge of the object, and 60 per cent included a house beneath the object--however, three of these houses (12.5 per cent) were too large and two (8.3 per cent) were too small. Twenty-three per cent of the participants included a labeled "red beam" which was always pointed downward from the object even though the text did not state this as a fact.

When all participants were placed into one of three groups based upon the number of years of UFO investigative experience and calculations made concerning the percentage of them who correctly drew the various details cited in the texts, the results given in Table 8 were obtained.

While it may validly be assumed that all participants understood the present instructions, it is not as clear whether all participants fully realized the importance of being complete in their drawings. Was a given text detail left out because it was not noticed during reading, because the participant felt it was not important enough to include, because he felt he was not a good enough artist, or for some other reason? There is no way to know the answer to these important questions for the present participants. One might also ask why investigators with from 0.1 to 10 years' experience drew less accurately than did participants with no prior investigative experience with regard to the "flat bottom" detail but more accurately with regard to other details given in the text?

Table 8

Percentage of Participants Who Included Specific Text Details in Their UFO Drawings by Years of Investigative Experience

Text Detail Included in Drawing	No.	Years of Investigative Experience: None	0.1 to 10	Over 10
		10	16	5
Descriptive Text 1				
"flat rim"†		70%	75%	80%
Descriptive Text 2				
"flat bottom"		100%	75%	80%
"dome on top"		60%	88%	80%
"lights around bottom edge"		70%	75%	60%
"red beam"		10%	31%	20%

†The term "flat rim" is ambiguous since a rim can refer both to the top and/or bottom surface or to the outermost circumference of an object. This ambiguity may have been reflected in the wide variation of rims in these drawings

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Comparing the results of the two groups with the greatest amount of investigative experience, participants with the most experience actually drew less accurate drawings for three of the five text detail categories than did the group possessing from 0.1 to 10 years of investigative experience. Clearly, the fact that a person possessed prior UFO field investigative experience was no guarantee that he or she will produce an accurate UFO drawing based only upon a written description of an object.

It must be acknowledged that drawings of UFOs made by artists or investigators are usually done in the presence of and with the direct aid of the eyewitness. Nonetheless, some drawings are published that are made only by second- and third-hand parties to a sighting. This situation must cease if UFO drawings are to become useful sources of information about the phenomenon.

Regarding the second subject of interest, namely the width/height ratio of the basic UFO shape drawn it may be said that the first text evoked a mean ratio of 11.37 (S.D. = 10.3) and the second text evoked a mean ratio of 30.6 (S.D. = 74.3). That is, the average UFO main body was just over 11 times wider than high for the first text descrip-

tion and over 30 times wider than high for the second. There is no obvious reason for this large a difference arising from the two texts themselves. One might ask why these mean width/height ratios are so much larger than those found in the UFO shape drawing tests discussed earlier (see Tables 2 and 3).

Regarding the third subject of interest, namely, the width/height ratio of the bump drawn on top of some of the drawings, it can be said that all participants in the first drawing test included a small bump whose mean width/height ratio was 3.57 (S.D. = 1.8). Eighty per cent of the participants in the second drawing test included a small bump whose mean width/height ratio was 3.71 (S.D. = 2.1). These ratios are very similar to those presented earlier in Tables 2 and 3.

Comparing the text descriptions of these two bumps one finds reference to "a little bump on top" in the first description and to "a dome on top" in the second. Eighteen (75 per cent) of these 24 participants drew obviously larger bumps on their second drawings. Only one participant (see the drawing in the lower left corner) drew a smaller bump on his second drawing and this may only appear to be so because of the orientation of the main part of the object. In comparing the two drawings made by each participant one finds a good deal of similarity. Perhaps this is due to the relative lack of shape information in the two texts provided and perhaps it is because these participants simply drew their own prototypical image of what a UFO should look like and allowed the text details only to modify these images in minor ways.

Some Concluding Observations. While the following observations should be considered tentative because of the relatively small number of participants in each of the tests conducted, they do raise some intriguing questions about the accuracy of visual perception of both "real" and "artificial" unidentified flying objects. They are offered not so much as to cast doubt upon the existing graphic UFO-related data as to urge those who are interested in obtaining more trustworthy data about UFOs to use more careful investigative techniques. Perhaps these findings will convince other investigators to perform their own studies on both the UFO phenomenon itself as well as on the eye witness of the phenomenon.

In the first part of this chapter it was reported that UFO drawings by alleged eyewitnesses do not differ in many ways from drawings by persons who claim they have seen a "real" UFO. There were some subtle differences in the drawings by each group, however, which suggested that eyewitnesses were more reluctant to draw certain kinds of details.

In the second part of the chapter three different shape-drawing tests were administered in an attempt to see if differences in drawings would be produced by carefully controlled (visual) stimulus conditions. Here it was discovered that people draw smaller shapes if they had been exposed to a detailed, illustrated lecture on UFOs just before taking the drawing test, that people are not particularly accurate in copying a sketch of a UFO even though they are allowed to look at it for a prolonged period of time and to make as many corrections to their drawing as they like, and that possessing a reasonably large amount of UFO field investigative experience (in years) is no indication that one will be more accurate in drawing UFO details that are clearly stated in a written text description of a UFO. Perhaps these findings may cast some doubt upon the maxim that a picture is worth a thousand words. Yet it can be maintained that it really depends upon the particular words used and the nature of the picture to be described. Clearly, both words and UFO drawings are called for in future UFO reports in order to allow the two to be cross-checked against each other. Since the UFO field investigator is to be considered an integral part of the UFO reporting process (along with the eyewitness) it would appear to be justified, on the basis of the above findings, to allow for both the investigator and the eyewitness to be cross-checked by the active presence of a second, trained investigator whose chief responsibility is to verify the point-by-point correspondence of the eyewitness's report and the investigator's report.

A careful, systematic analysis was also made of the possible relationship between the mean width/height ratio of the UFO body and the degree to which the participants within each group were likely to be familiar with the UFO literature. The mean width/height ratio of the body of the UFO drawn by these participants ranged from 2 to 30. 6. The great majority of UFOs were only about 3. 5 times wider than high, however. No systematic relationship of this nature could be found in the present data.

Data such as are presented here have shown that one should not underestimate the complexities involved in drawing pictures of UFOs nor of analyzing their content. There is much more to be learned and some exciting breakthroughs to be made in understanding how humans perceive UFO phenomena, whatever the phenomena may be. Perhaps such understandings will unlock the true identity of these strange aerial sights now known as unidentified flying objects.

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Chapter 13

POSSIBLE INFREQUENT GEOPHYSICAL SOURCES OF CLOSE UFO ENCOUNTERS: EXPECTED PHYSICAL AND BEHAVIORAL-BIOLOGICAL EFFECTS

Michael A. Persinger

The problem still remains that in a few cases individuals appear to have been exposed to some stimulus that elicited profound psychological and physiological changes. Although the ad-hoc (or after the fact) descriptions of the event may in no way reflect the actual stimulus, the origin of the phenomenon must still be isolated. The following theory is presented to accommodate some of the more pronounced close encounter UFO cases. It will not and cannot explain all UFO cases--from the bizarre movements of a light in the sky to the clear psychological difficulties that characterize some alleged contactees--since the term UFO has been applied widely and indiscriminately to myriad events with unspecified sources. Like any theory, its strength will depend heavily upon compatibility with existing data patterns, internal consistency, relationship to known and previous natural principles, and most importantly, the capacity to quantitatively predict the phenomenon in question.

The UFO research area has been plagued with a lack of testable theories, a problem that primarily reflects the unscientific background of the majority of investigators involved, heavy reliance upon the face value of human report, and the total dependence upon ad-hoc examination and explanation of the data. There is a critical difference between gross speculation and after-the-fact explanation (which composes most of the extraterrestrial arguments) and systematic theorization. The theories of D. Menzel and P. J. Klass, for example, are based upon sound physical principles that can generate testable hypotheses and be subject to empirical examination. These theories at least have the potential to predict the phenomenon in a quantitative fashion.

The present theory is derived from the assumption that as yet some unspecified, infrequent, natural terrestrial

processes are primarily associated with the clear physical data associated with UFO instrumental measurements (such as photographs of luminous stimuli), electromagnetic occurrences and biological-behavioral effects. It should be regarded as probationary until the hypotheses generated from the basic assumptions have predicted the space-time characteristics of forthcoming UFO events. The present theory is intended as a model to demonstrate the important difference between theoretical testing and general speculation, and the thesis that many natural possibilities must be examined before all-or-none acceptance/rejection of the extraterrestrial explanation is seriously entertained. There is neither personal commitment to the theory nor the contention that it is the only option.

Essentially, the theory states that normal geophysical processes applied in unusual space-time configurations are responsible for electromagnetic phenomena that have direct physical and biological consequences. These processes involve normal alterations in tectonic (structural) stresses within the earth's crust and are mediated by piezoelectric-like effects. The primary natural analog of this putative phenomenon would be earthquake lightning and the variety of luminous shapes and forms reported for centuries to be associated with earthquakes. Whereas earthquake-related luminosities appear contingent upon large releases of structural strain (seismic activities), the luminosities and electromagnetic correlates of alleged close encounters with UFOs are associated with highly localized, less intense changes in crustral structures not necessarily involving major seismic activity.

However, since the two phenomena are assumed to share a similar mechanism, clear, seismic-correlated UFO-like displays should reflect the basic characteristics (but at more intense levels) of non-direct earthquake-related forms. It is realized that any similarity between the two phenomena may be spurious and reflect an erroneous "similar plus similar equals same" reasoning. The attenuation of this possibility depends upon the number of details and precision of descriptions predicted by the model.

SEISMOELECTROMAGNETIC PHENOMENA

Earthquake-Related Luminosities: Historical Accounts

UFO-like luminous displays and correlative electro-

magnetic phenomena have been associated with some earthquakes for centuries. Yasui (1974) reports that Japanese accounts of these phenomena have been recorded for about 1500 years while European reports have been known for about 800 years. In 1931, Terada reported the available evidence for earthquake-related luminous displays that are now grouped under the general heading of earthquake lightning (EQL). Terada reported a classification scheme published by I. Galli in 1910 to describe the basic patterns of historical earthquake-related luminosities. Reports of EQL within the last 20 years indicates that Galli's classifications are still appropriate. According to this scheme, luminous earthquake-related phenomena involve indefinite instantaneous illumination, well-defined and luminous masses, bright flames and emanations, and phosphorescence of sky and clouds.

The second class of earthquake lightning is most relevant to the UFO problem. Further divisions of this category by Galli involved the report of fireball shapes, fire-column shapes, beam of fire or searchlight-like occurrences, and luminous funnel (triangle) shapes. Terada reports several historical accounts of these EQL manifestations. A fireball resembling a paper lantern was reported flying through the sky before a local earthquake in Yedo, Japan, in 1672. In the case of the Tossa earthquake of 1698, a number of fireballs shaped like wheels were seen flying in different directions. Before the Sinano earthquake of 1847, "a fiery cloud appeared in the direction of Mt. Iduna. It was seen to make a whirling motion and then disappeared. Immediately afterward, a roaring sound was then followed by severe earthquakes."

Between 1900 and 1930, several Japanese accounts of fireball or searchlight phenomenon were reported to occur during the 24-hour periods before and after earthquakes; the severity of the earthquakes themselves did not appear to be a critical factor per se. In 1917, a fire column was seen in the mountains north of Siduoka, and on September 1, 1923, a stationary fireball was reported over Tokyo. Following the first shocks of an earthquake in 1924, a pillar of fire over the roof of a house was seen; the pillar of fire was slightly bent with its concave side to the right while its upper end merged into a diffuse sheet of light attaining a considerable altitude. During the aftershock of the Tazima earthquake on May 23, 1925, a luminous ball (something like a football) in the sky was reported; it moved rapidly from northeast to south like a shooting star and then disappeared. One fireball,

observed during a local seismic display in 1930, was noted to be stationary for a period and then moved upward and vanished, followed by luminosity in all directions.

Terada scrutinized the details of reports concerning EQL following the earthquake of November 26, 1930, in the Idu district; the data were primarily collected from questionnaires circulated to the masters of middle schools in adjacent prefectures. Unfortunately, Terada does not publish the questionnaire format; as a result, it is not clear how the questions were asked. This factor is very important in situations involving transient, unusual events since the label given after the observation may influence the recall and verbal behavior about the event.

From 1168 reports, Terada summarized the general patterns observed. For example, a number of fishermen who were about to set their boats afloat the evening before the earthquake observed a spherical luminous body to the west of Mt. Amagi which moved at considerable speed. In addition to the usual sheet displays, luminous beams and columns were also seen at different places by hundreds of witnesses; the beams and columns appeared to be manifested in a variety of forms, directions and modes of motion. Ball-form and funnel or trumpet-form luminosities were observed near the epicenter.

During the shocks, flashing lights were seen in several places, "moving now in one spot and then in another, thus successively in different places." When the earthquake was at its height, "a straight row of round masses of light" (Terada's emphasis) was seen. "Each of these luminous bodies was seen to be in revolving motion. The brightness was considerable. Their heights seemed to be equal to the top of the poles of transmission lines." Some lights varied direction. One light "... first appeared above Mt. Hakone and was seen to be propagated southwards, towards Mt. Amagi. Then it reversed in its direction of propagation and went back towards Mt. Hakone." The colors of the luminous displays were primarily pale blue white or similar to an electric spark or lightning. However, a large number of the witnesses were "sure" that the color was reddish or orange in color. Reddish or scarlet tinges and glows and the like are compatible with reports of earlier investigators as well.

The descriptions of Takata, Galli, and others represent some of the most typical and elusive aspects of alleged

UFO sightings. Reports of luminous glows or "masses" with variable shapes and characteristics are found in copious numbers within the UFO literature. Contrary to popular belief, photographs and moving pictures of UFO objects are primarily undifferentiated luminous displays and not structural, metal objects. As Klass (1974) points out, the majority (if not all) of the structural photographs have been demonstrated to be or are very likely fraudulent or contrived.

The spheroid type of EQL also displays other properties typically attributed to UFOs. In addition to the trumpet shapes, triangle shapes or football shapes, these luminous displays exhibit quick alterations in direction and acceleration, including "right-angle turns" and sudden "elevations." Multiple clusters of luminous spheres have been noted to assume a number of geometries from wheels to straight lines. Similar reports of "squadrons" or geometric clusters of luminous lights have occurred in the UFO literature. Thunderous roars, explosive sounds (although infrequent) and flashes of light have been mentioned to follow the disappearance of luminous displays. Like UFO descriptions, colors of EQL spheroids have been primarily whitish to bluish or reddish. Changing colors may occur in both stationary and moving luminosities.

Recent Accounts of EQL

Yasui (1974) has published photographs and details of EQL during the Matsushiro earthquake swarm of 1965-1967. According to his report, the following correlates are associated with EQL displays:

Spatial Locus: EQL is most likely to occur on hill tops or high mountains; in the majority of instances, it occurs near but not at the epicenter (Derr 1973). Terada mentions EQL reports up to 100 km from epicenter.

Geological Conditions: EQL is most likely to occur around old volcanoes or strong acidic rock areas such as dacite, granite or dorite. The phenomenon appears especially likely around fault areas and outcrops of quartz diorite. Yasui reports measurements of increased carbon dioxide in the free air and soil gases near the outcrops of faults. In addition, the area of diorite outcrops at Matsushiro show an extraordinarily high natural radioactivity. Yasui thinks that the soil air under the strong acidic rock contains much

radon, such that the radon content near the outcrop may become quite high following the stress effects of an earthquake.

Meteorological Correlates: For the Matsushiro clusters, EQL seemed most likely before the passage of cold fronts; proportionally more episodes were seen in the winter.

EQL Characteristics: In the Matsushiro region (one should realize that the specific form of EQL appears dependent upon the local topography and geology; consequently, there may be some range in quantitative values), the main luminous body of EQL displayed a flattened semisphere (lower fringe on the earth's surface) with a diameter between several tens of meters to about 100 m. In one instance, several witnesses saw the luminous hemisphere of this episode rise up from the hill top and then descend. The color, primarily bluish white, may be altered by clouds and refractive dynamics to reddish, orangish or purplish, although all colors have been reported as well as changing colors. Luminescence duration ranged from 10 seconds to 2 minutes and predominately occurred after the quake.

Electromagnetic Correlates: Yasui and others have reported strong atmospherics (naturally-produced electromagnetic waves) especially between 10 kHz (10,000 cycles/sec) and 20 kHz following the luminous displays. However, there appears to be more central, intense electrostatic or extremely low frequency (about 0.1 Hz to 10 Hz) phenomena as well. In conditions associated with EQL, St. Elmo's fire may be found around electric charge collectors such as telephone poles, electric wires and related objects. Before the use of power lines, similar St. Elmo's displays occurred around steeple tops, ship masts and related structures.

Derr (1973) also has reviewed the literature on EQL. He mentions several examples of EQL in the United States. Flashes of light and related luminosities have been reported before, during or following a number of earthquakes in California between 1872 and the present. Reports of what appeared to be bolts of lightning traveling from the ground towards the sky were recorded from witnesses following the Humboldt County earthquake of 1932. Earthquake lightning appearing as sequential flashes from different, random places were noted following two earthquakes near Hollister, California, in 1961. During the Santa Rosa earthquake of October 1, 1969, lights were seen extensively and described in terms of electric sparks, lightning, St. Elmo's fire, fireballs

or meteors. Some people heard sounds like explosions. Yasui (1972) commented in more detail on the Santa Rosa episode. Apparently, reports of a ball of light prior to the earthquake were reported. The details of the observations displayed great variation from "the light started near the ground and rose up, and the basic shape was tubular" to "it was a purple colored light like a bomb explosion."

Correlative alterations in biological objects adjacent to the luminosities have not been reported. Several Japanese investigators who visited the general areas of the luminosities after the episodes found no observable evidence. Any effects found on trees or plant life in the vicinity would not necessarily imply luminosity interactions. More direct effects could be involved. Derr (1973) mentions that movement on a fault can generate considerable heat. For example, after the Sonora earthquake of 1897, trees overhanging the fault were scorched. Human injury or death from EQL has not been reported. Such deaths would have been allocated to direct earthquake causes; there are few postmortems after earthquakes.

Other impressive displays of EQL and related luminosities were reported for the 1966 Tashkent earthquake in the Soviet Union, in Mexico City during the 1957 Acapulco quake, and in the Los Angeles area during the San Fernando earthquake of February 9, 1971. In some instances, fluorescent lamps began to glow without the use of conventional power sources. Derr's review includes the personal communication of an observer of the July 16, 1973, earthquake on the coast of Guerrero State (Mexico). After the quake, a strong noise on the FM radio in the reporter's car on all stations was noted for about five minutes. These data suggest that EQL displays are electromagnetic phenomena.

The relevance of the more recent EQL correlates to the UFO problem is also apparent. In fact, Derr (1973) frankly states that the study of earthquake lights also leads to investigation of UFO reports from nearby areas. Certainly the radio disturbances, effects upon electrical apparatus, and in some instances, alterations in animal behavior that occur before or after EQL displays is similar to conventional close encounter UFO cases.

Theoretical Explanations

Theoretical interpretations and explanations of earth-

quake lightning have been suggested by Terada (1931), Finkelstein and Powell (1970), and Yasui (1972); reviews of present theories have been reported by Yasui (1972) and Derr (1973). One of the most likely mechanisms of EQL involves the piezoelectric effect whereby mechanical stress/pressure upon certain types of rock crystal generates large electric potentials but very small currents. In an unpublished paper, Finkelstein and Powell develop the necessary equations to support their hypotheses and compare known quantitative measurements. The maximum piezoelectric potential difference would be a function of the spatial form of stress applied to the rock, rock distribution, the temporal form of the stress, the time constants of the media, the piezoelectric characteristics of the rock body, the scale of the stress change in the rock, and the length of the process.

Using stress changes of between 25 and 250 bars (measures of pressure) for epicenter values (an upper limit would be set by the strength of the rocks, e.g., around 1000 bars) and high resistivity materials, Finkelstein and Powell calculate that potential differences of about 100 million volts could occur, with small currents. These values could produce ionization or discharge in local air. According to their model, areas with excess quartz should be good candidates for the EQL mechanisms and since earthquakes typically occur in acid, high-silica areas (apparently because such rocks are more brittle than basic rocks), it is likely that such areas would hold rocks with excess quartz. The outcrops of quartz diorite in EQL areas reported by Yasui have been mentioned.

Finkelstein, Hill and Powell (1973) report an initial empirical test of their piezoelectric theory. Data collected in the area of the unusual lights seen during the San Fernando earthquake of 1971 indicated that the rocks did not have the appropriate resistivities to accommodate their models. However their measurements involved shallow depths and localized regions of examination.

UFO DISPLAYS AS TECTONOGENIC ELECTROMAGNETIC PHENOMENA: PHYSICAL CHARACTERISTICS AND PREDICTIONS

The UFO Model: General Rationale

Characteristics of this model have been discussed by

Persinger and Lafrenière (1977) and Persinger (1976). Essentially, the model assumes that geophysical processes similar to those associated with largescale earthquake lightning are produced at lower magnitudes within very localized areas without immediate or major fracturing and related seismic activity. Within these localized areas, in the order of 100 to 10,000 square meters, intense electromagnetic (EM) forces are generated for short durations, in the order of seconds to minutes. These hypothetical EM fields will be called EM columns and will be assumed to represent aberrant concentrations and overlapping of EM flux lines. Such alterations in flux lines would produce a condition that can be described metaphorically as an "electromagnetic tornado," within which luminous potentials could be achieved or plasma environments could be maintained for short periods. The changes in subsurface strain release associated with the EM column would be inconsequential from a global or general theoretical perspective--in this context, the energies involved are too minute for consideration. However, these miniature localizations could be well within the range of perception by a human observer. It is often forgotten or unrealized that the human species lives upon an ultra-thin shell of not always stable material beneath which mammoth processes are generated influencing thousands of square kilometers.

The oddity of the phenomenon lies not in the particular physical principles of tectonic forces or electromagnetism but instead within the complex geometries in which they are applied. The unusual factor involved here is the observation or manifestation of these forces in very small areas relative to the total space over which the forces are applied. One would expect minute disparities in the distribution of these forces within heterogeneous media. Examples of this principle exist in chemistry at the level of the molecule. In a glass of water, one would expect from gross observation (at the level of the total volume of water) that the water molecules are homogeneously distributed throughout the volume. However, if proteins were placed in the water, very small increments of space in the order of 10^{-18} of the total volume would occur within which no water molecules existed (hydrophobic pockets). These minute volumes would show unusual or aberrant properties in acid-base values and related physical characteristics; they could even display charge characteristics orders of magnitude different from adjacent regions. Because of the relative size of these volumes, the large extremes in physical values would be eliminated (averaged out) or fall within the statistical noise level of measurement when observations were considered at the level of the entire volume.

A similar principle can be applied to still larger volumes of space. For example, the thermal processes associated with a weather mass produce a small breeze when distributed over, say a 1000 by 1000 km region. However, when similar processes are concentrated into a small region of space, less than one square kilometer, intense and deadly turbulence results: the tornado. Not only does the magnitude of the forces increase but some of the characteristics not detectable by the human observer at the larger areas of occurrence become blatant. Characteristics of rotation, oscillation and correlative electromagnetic displays become apparent. Some of these characteristics may be unique to the rotational areas involved such as specific infrasound frequencies. At this level of localization, a multitude of variables, otherwise considered statistical and insignificant, become important factors in the control of the complicated movements of this energetic space.

Geophysical scientists often do not acknowledge that little is known about minute boundary effects or nth-order interactions within heterogeneous materials when general principles/equations are applied homogeneously to extremely large spaces (such as the volume of a planet). The consequences of small deviations in the distribution of force applied over an entire system to an area 10^{-12} of the area of the total system still have not been entertained seriously. These minute "pockets of stress" would be insignificant over the entire system but very powerful locally. Such local tectonic conditions would be responsible for UFO-stimuli. A number of predications can be generated from the theory.

Electromagnetic Column and Luminous Body Shapes

As mentioned, the basic shape of the EM column has been assumed to be cylindrical in nature. The actual diameter may vary; conceivable diameters range from less than 10 to about 100 m. Maximum height values are not directly apparent from the assumptions of the model. Luminosity associated with an EM column should vary in size as a function of the column's size, which in turn would reflect the energy involved. Large columns could involve sufficient electric potentials to induce very large currents in available conductors.

More than one column could be generated from local tectonic conditions. Several columns could occur in close

spatial association and produce luminous clusters of lights. Major disturbances over areas of 10,000 to a million square kilometers could be prone to tens of such columns generated in a short time. However, not all columns would approach field values sufficient for luminosity.

Luminosity and luminosity shape conditions constitute a major limitation of the model. Frankly, it is not clear how the luminosity could be contained in a small space (without dispersing in all directions like fireworks) for durations (in the order of seconds to minutes) typical of UFO stimuli. A possible natural analog for this mechanism involves the production of ball lightning. This EM phenomenon is associated with luminous, highly energetic, coherent, spherical formations lasting for several seconds to about a minute. Living organisms closely approaching ball lightning can be seriously injured or killed. The underlying mechanisms are not clear, although considerable theoretical considerations have been made for plasma-like conditions. Contemporary theories require massive tangling and concentration of electromagnetic flux lines for these periods.

The shape of the luminosity should be predominantly spherical or elliptical due to the natural geometries of charged distribution. However, severely ellipsoid manifestations could appear in a number of forms depending upon the angle of observation. Vortical rotations of the EM column would also rotate the axis of the luminosity.

A significant portion of the model depends heavily upon the complex geometry of the interactions of applied forces as the source of the odd displays. Natural examples do exist, such as the tornado, that demonstrate these effects. On the other hand, excessive reliance upon complex vectors as the "explanation" for the model's failure of prediction may approach the level of rationalization rather than insufficient data.

Geological Characteristics of Locality

UFO displays should be prone to occur in areas with large proportions of materials displaying the high resistivities (in the order of a billion ohm-meters) suggested by Finkelstein and Powell for earthquake luminosities. The location of the appropriate materials may be variable and could occur below a more conductive surface area. Since water levels

contribute significantly to the resistivity of subsurface minerals, factors that increase the resistivity should increase the likelihood of UFO displays in that area, assuming appropriate strain conditions. In some regions drought may be sufficient to significantly alter the water table and enhance the resistivity of near-surface candidate materials. Candidate materials would involve granite with large amounts of quartz, as suggested by Finkelstein and Powell and Yasui.

UFOs and Seismic History

Since localized accumulation of strain within subsurface rock structures of optimal resistivity and crystal structure has been considered the primary source of piezoelectric-like effects associated with UFO displays, factors that facilitate the accumulation and/or release of tectonic stress should be correlated with UFO reports over time. Slow accumulation of strain or slow tectonic changes would be required since sudden intense changes would fracture the supportive rock structure and eliminate or attenuate any piezoelectric possibilities. As Derr points out, EQL appears to occur never over the epicenter but at some distance away where non-fracturing but optimal strain levels could initiate changes in appropriate rock structures.

With this assumption, one would predict that UFO displays should occur more frequently in areas typified by earthquakes, especially those preceded by long periods of stress accumulation. Sample areas would be the New Madrid region in Missouri, Illinois (and surrounding regions), or the New York region. California would be still another excellent candidate. The critical feature is the accumulating strain on appropriate structures; consequently, seismic activity at any given time may not be correlated with UFO displays. Strain levels are known to increase or decrease in some areas without major fracturing and seismic activity. However, over intervals of time representative of several adjustment periods, UFO profiles should be apparent within these areas (see Persinger 1976).

UFO displays could both precede and follow seismic events by weeks to months. Such displays preceding seismic events should be (theoretically) more frequent and could occur during longer time intervals before the earthquake while UFO events following seismic changes should decrease quickly as the fractured rock structures readjust. However the num-

ber of UFO displays should be correlated with the amount and duration of after-shocks and microseisms during the adjustment. If the geometries were not too complex and if sufficient geological information were available for UFO prone areas, the rapid increase in sighting of these displays could be used as prognosticators for changes in tectonic stress. These possibilities have been either suggested or stated by Derr (1973), Finkelstein and Powell (1970), and Wiedemann (1977).

Precipitating Stimuli

Assuming that optimal stress geometries had been applied to prone minerals, some specific stimulus must precipitate the actual display of the luminosity. These stimuli could be quite small relative to geophysical standards and would be analogous to the "straw that breaks the camel's back." Natural stimuli that would be included as candidate trigger stimuli are further accumulating tectonic strain, passage of the moon (tidal forces), and quick and sudden passages of air masses, especially frontal movements (providing different barometric pressures on supportive rock structures). Possible local man-made trigger stimuli would include reservoirs (especially if the total mass/volume underwent relatively marked alterations in a period sufficiently small to require readjustment of circumreservoir rock matrices), large explosions, and induced slippage from subsurface waste disposal. Localized effects in small prone areas due to largescale alterations in entire crustal blocks or segments would be still another possibility. In this instance, stress distributed across the block would be statistically distributed to prone areas. However, the vectorial solutions would be very complex and analogous to calculating specific force depositions within a large, very heterogeneous crystal lattice. Because of the large forces involved, any extreme spatial localization could actually fracture the rocks very quickly. Other candidates of this order would be intense solar storms that undergo 11- to 12-year cycles, distant seismic activities, and correlates of the Chandler wobble. At present, consideration of such forces is empirically prohibitive.

Topographic Locations

Since it may be assumed that UFO "lights" are a consequence of tectonic stress associated with electric field poten

tials that achieve luminogenic values, these light displays should occur in areas that would allow maximum concentration of the electric field and ionization potential. Apices and edges of materials could act as "discharge" points. Consequently, like earthquake lightning, such luminous displays should occur on the top of hills, peaks of mountains or bluffs or near the tops of buildings. Other charge collectors would be important contributors to the luminous capabilities of the electromagnetic column. As a result, UFO reports should be evident around power lines, power stations and less energetic materials such as railroad tracks and pipelines. These areas should be clearly evident in UFO area patterns. However, the optimal structural geometry may be buried beneath the surface as well, in which case surface topography would not be a reliable cue.

Apparent Movement Effects

If the source of the luminosities is associated with tectonic strain, movement of the strain source due to changing or stress-release factors should be reflected in the three-dimensional activity of the luminosity. Since tectonic stress release and associated movements tend to occur along local fault lines, UFO paths should closely follow these patterns. On a regional scale, UFO reports should cluster in general along active fault lines at perpendicular distances sufficient to allow optimal piezoelectric pressures.

Since the locus of the subsurface sources exists in three-dimensional space, any movement in the stress source should be reflected by the luminosity, like a "transformation of axes" on the earth's surface. Thus the object could appear to move from side to side, up or down, or suddenly shoot into the air or "crash" into the ground, depending upon the subsurface movement. Sudden displacement of the sources along stress lines and secondary faults would be associated with "high-velocity" and/or "right-angle" movements of the luminosity.

"Landing Phenomena"

If the EM column associated with subsurface forces moved over a conductive region, current flows could result that would be sufficient to kill plant life or alter the physical properties of appropriate minerals. Residuals of common

elements found in minerals should be found in the vicinity (which could be called a "saucer nest") such as aluminum, iron, silica, etc. Electromagnetic column-mediated release of subsurface radioactive substances (if any) would be apparent.

Electromagnetic Effects

Since the EM column is sufficient to induce luminosities in the air, passage of the column over electrical/conductor systems should induce EM disturbances. Electrical appliances such as televisions and radios would malfunction ("go dead"). As mentioned with earthquake lightning, atmospheric frequencies generated around the column should induce significant noise ("static") and mask signals from adjacent radio stations. Low-frequency components of the column would induce similar frequency effects in power lines and telephone lines--the latter may be experienced by the human observer as sounds like "breathing," "whishings" or "beeps." Because of the high electrostatic potential involved, light systems in cars would also be influenced as well as automobile engines because of effects across the spark-plug gap. Passage of the EM column over optimal conductors such as fuse boxes or high-density electronic wiring would be sufficient to melt or "blow out" the contents. Compasses would also "go wild."

If the EM column moved beneath or adjacent to power lines, significant induction and overloading could occur at local transformer stations producing blackouts. The luminosity also might affect radar propagation. Such modification would be interpreted as an "object" in a manner similar to detection of certain atmospheric turbulence. As the EM column potentials fell below luminogenic values, the radar image would be seen to "fade away."

Cultural Confounding Variables

The tendency for UFOs to move along roads or pathways or related linear lines should be correlated with local geological features; labeling this as "intelligent movement" would be an erroneous interpretation of systematic activity. For example, roads are often built in relation to accessible topographies such as along or parallel with old river beds, valleys, gullies and other regions beneath which local or

small fault lines may be located. UFO occurrences in isolated regions where installations (e.g., atomic reactors, military plants, reservoirs) are constructed would represent the nature of the geological structures. Hard, acidic granite-related areas that may not have been conducive to early farm life or community building (and hence little population density) would be optimal areas to build such plants. The location of the UFOs in this locality would reflect the subsurface rock strata and not the "importance" of the cultural constructions on the surface.

Localized Historical Accounts

Since tectonogenic mechanisms can be shown to be associated with UFO luminosity production, historical reports of UFO-related phenomena in areas prone to low-level and slow-accumulating tectonic strain should be evident. No doubt the occurrence of any UFO-like luminosities or events would have been influenced by the metaphorical labels of the period. Areas prone to "ghost light" like phenomena such as the one investigated by Wiedemann (1977) and his colleagues may have been called haunted, bewitched, taboo or the habitat of an invisible or spirit entity. Consequently, unusual events in these areas may have been classified under parapsychological or occult rubrics. In some cultures, these areas may have acquired significant religious or superstitious significance.

Since human verbal behavior in the context of these stimuli is prone to serious methodological and measurement limitations, precise details for the historical descriptions of these events may be irrelevant or even misleading. The investigator could attempt to isolate references to electromagnetic effects and related displays, but this too would be limited by the relative paucity of electromagnetically-affected objects (with the exception of the human being) before the turn of the century. Oddities in compass movements, smoke paths, accumulation of clouds on a clear day or direct biological effects (paralysis or blackouts) may have been reported.

General Support Data

The predictions of the model are primarily qualitative at present. Quantitative evaluations are limited by incomplete data pools for UFO phenomena, biased data categories

from investigator effects and arbitrary labeling, and few inter-correlation studies between UFO events and the mechanisms suggested in this model. However a few trends suggest that further testing of the theory is warranted.

A major prediction is a significant correlation between UFO reports and seismic profiles, especially low-intensity earthquakes. Persinger and Lafrenière (1977) analyzed UFO reports between about 1860 and 1972 in states bordering and east of the Mississippi River. These states were selected because there has been a sufficiently large population in these regions for detection of major UFO events during the years analyzed, and the states range from active seismic histories to almost no activity. These researchers found a correlation coefficient (r) of +0.58 between UFO-related reports and minor earthquake activity (Mercalli V to VI). Although statistically significant, the correlation was confounded by population numbers which also significantly correlated with seismic history. Path analyses were inconclusive.

These analyses were much too general. Correlations should be calculated between specific classes of UFO types and seismic activity in immediate and adjacent spatial increments since stress values optimal for EM column production may occur at distances from the epicenter. Possible supportive structures for EM column production would be eliminated in epicentral regions. Statistically, one would expect the distance of luminosity production to be directly proportional to the intensity of the earthquake. Considering the periodic functions of candidate trigger stimuli, the time between the luminosity and "seismic event" should vary from one to 28 days. However the critical feature would be the rate of stress accumulation. With such temporal delays between the luminosity and seismic event, lag analyses must be completed on available data. The relationship between UFOs and earthquakes is not a unique consequence of the present theory. Other investigators, as mentioned by Creighton (1971), have suggested a relationship in the other direction, i.e., that UFOs cause earthquakes. The present model demands that a third factor elicits both phenomena.

A more reliable general support of the theory derives from the characteristics of the UFOs. As mentioned by Klass (1974), there are few pictures of UFO-labeled objects displaying structural characteristics (doors, windows); these are suspect. The vast majority of UFO photographs and films show intense blobs of lights at night or dark regions during

the day. Such photographs have been taken worldwide (e.g., Ben 1970, Gheorghita 1973, Takanashi 1972). These light blobs display characteristics remarkably similar to earthquake lightning and related natural electromagnetic phenomena such as ball lightning except no contiguous seismic or thunderstorm activity is apparent.

A more specific support case has been reported by Wiedemann (1977) who has summarized the conclusions of W. S. Wagner, J. Mazzuchelli and their colleagues. These investigators have initiated a paradigm that is essential to the test of any scientific theory: systematic measurement with varied but interrelated instrumentation. In a series of experiments, they measured a number of physical correlates associated with the "spooklight" in Morris County, New Jersey; the light displays many characteristics of low-level UFO phenomena except that the glow diameter is less than 0.3 m (or about one foot). Assuming the validity of the theoretical assumptions in this chapter, the small glow diameter would suggest a very localized and weak EM column that would be less likely to induce damaging consequences in adjacent human observers.

In their report, they noted that the yellowish-white light was visible for a period in the order of 100 seconds. The light appeared beside a railroad track and moved over and parallel with the rails. When it vanished, it disappeared as if it had been "switched off." While the light was under observation, several instrumental changes were recorded. Oscilloscopic displays in the range of 40 kHz were detected and the capacitance test indicated the presence of a conductive body over the rails. Nine minutes after the light had disappeared, full-scale Geiger counter readings (greater than 5 milliroentgen/hr) were noted for about 10 seconds followed by a return to background levels (0.1 to 0.2 mr/hr) followed later by another full-scale reading. Photography indicated the presence of a light source. The observations were made on the night of November 20-21, 1976. A drop of barometric pressure from 29.90 to 29.76, associated with the passage of a cold front, preceded the onset of the phenomenon by about one hour. At the time of the light appearance, a light snowfall was in progress. Interestingly, Wiedemann and his colleagues state that loud booms (-0.25 to +0.38 on the Richter Scale recorded by seismographs) were reported by people several miles from the site on December 5-6.

UFO DISPLAYS AS TECTONOGENIC ELECTROMAGNETIC PHENOMENA: BEHAVIORAL-BIOLOGICAL EFFECTS UPON THE HUMAN ORGANISM

The presentation of the EM column to a human observer would evoke both indirect and direct effects. Indirect effects would probably involve the observer's "labeling" and "interpretation" of the odd stimuli. These responses would reflect primarily the person's prior reinforcement history (experiences). Groups of individuals with different reinforcement histories and different labels for unusual events would be expected to describe the "same stimulus" in significantly different ways (before they talk to each other, i.e., develop a shared reinforcement history). Such problems have been discussed in Chapter 9. Direct effects would involve acute stimulation of the human as a semi-conductor and electronic system. It is often forgotten in UFO contexts that the human being is a delicate electromagnetic instrument. The brain displays continuous and complicated electromagnetic patterns associated with the coding and processing of environmental events. Through conditioning, the human being learns that certain patterns of stimulus input, coded in specific sequences of nervous activity (action potentials), are associated with particular private responses (thoughts, memories, images). Stimulation of those patterns, independent of the usual sensory sources, can elicit private responses that are just as real, to the perceiver, as those evoked by the original environmental sources. Examples of such responses can be found in epileptic behaviors associated with small foci in parts of the brain. These foci are associated with alterations of only a few millivolts in the steady background potentials, yet synchronized discharges of the numerous neurons within the focus are correlated with vivid, realistic imagery that the person experiences as a "real" event. The realism is enhanced when the experiences are similar to what is expected or familiar.

Indirect Effects

Being in close proximity to the hypothetical EM column would generate a number of predictable behaviors from the human. First, if the column potentials had achieved luminogenic potentials, the person would respond with behavioral patterns associated with novel events. Excessive autonomic (emotional) responses characterized by excitement

at one level and fear-related responses at another could be expected to follow. Significant disruption in the normal orderly patterns of behavior would be evident. Escape behaviors, such as "running away," "jumping overboard" or "driving at high speeds" would be typical and may actually exacerbate the intensity of the effect. For example, the initial observation of the odd light may only induce small autonomic changes but as the person initiated escape/avoidance behavior, the intensity and pervasiveness of autonomic changes would increase in a cascade. Some time later the person might be described as "showing cold fear," "freaked out" or "in a state of shock."

Once the autonomic arousal has occurred, the recalled details of the actual event would be questionable at most, especially if emotionally-loaded terms such as "UFO" or "ghost" had been used to describe the encounter. The disruption of normal behavioral patterns (including thinking) following the presentation of the odd stimulus would be sufficient to alter "remembering" of the actual event sequence. Characteristically, the person may say something like "time seemed to stand still" or "it seemed like we flew to the police station," characteristic indicators of disruption or suppression in private responses.

Anthropomorphic Interpretations. No doubt the kinetic characteristics of the luminosities would be interpreted within an anthropomorphic format. As a result, behaviors of the lights would be allocated with human properties and abilities. Approach of the luminosity could be interpreted as "attack," especially if direct effects from the EM column resulted in pain or some alterations in sensory input. Movement of the column in specific directions could be considered "seeking" behavior or as "snooping" or "investigating," while stationary behavior could be called "surveillance." Attenuations of electrostatic potential below luminogenic values due to alterations in tectonogenic sources, charge dissipation or alterations in local air characteristics (e.g., ionization) could be interpreted as "powers of invisibility," "fading into another dimension" and related labels. Depending upon the temporal gradients involved with the decrease in potential, the luminosity may be seen to suddenly disappear (like someone turning off a light) or slowly fade away. One would expect sudden disappearances to be preceded by increased light intensity or associated electric activities. As the column moved along the local fault lines or stress release points, its interaction with appropriate materials would elevate the poten-

tial to values capable of producing luminous discharges. The human observer might comment that the UFO suddenly reappeared some distance away from the point of disappearance. If an assumption was made that the luminosity was an object, then one would be forced to conclude (erroneously) that it had "dematerialized" or "rematerialized."

Superstitious Conditioning. Repeated oscillations around luminogenic values would produce short, recurrent displays that the person would see as "blinking" or "flashing." Such flashes may be interpreted as attempts at communication or as some type of "coded" transmission. Human beings have been conditioned to respond to systematic and/or predictable stimuli in the environment. Culture can be defined as those human organisms sharing specific reinforcement schedules or expectancies. Consequently when any semi-systematic but unknown stimulus is observed in the environment, there is a propensity to allocate "intelligence" to the source as well as the properties of "thinking" and "volition." Movement along linear pathways or "avoidance" of objects or "attraction" towards objects have been common reports of ground-level luminosities. Invariably, these behaviors are interpreted as signs of "intelligence." The committed observer rarely entertains the possibility that linear movement along a highway may only reflect a third factor correlated with both the luminosity and the highway such as a fault line running parallel and beneath the highway or that movements around or towards an object (including a human semi-conductor) may reflect only ordinary responses to conductors and/or dielectrics.

The human using private responses (thinking) as his primary measure of ground-level luminosity behaviors would be prone to gross errors. Maintenance of thoughts (like other behaviors) is a function of the patterns of reinforcement/reward. If a person assumes that the random or semi-random rise and fall of luminogenic potentials (perceived as flashing lights) are communication attempts, then occasional random flashes in an expected "pattern" will tend to reinforce that behavior. For example, suppose the person views such flashes for a 20-minute period during which time approximately 50 to 110 flashes occur. Since by chance alone, some of these flashes will coincide with some signal similar to a code known to the observer, the observer would be reinforced for thinking that some type of communication attempt is in progress. The variable nature of the occasional coincidences in time (a variable interval schedule) would be sufficient to main-

tain that type of thinking and related behavior for long periods of time; this is a normal condition of human behavior.

Because of the autonomically arousing nature of the situation, the human observer would be prone to superstitious conditioning schedules as well. In superstitious conditioning, any response can be reinforced if it accidentally (or by chance) occurs close in time with a rewarding stimulus even though the display of the response is not associated with the actual delivery of the reward. For example, rain dancing occurs in some cultures. This behavior is more likely to occur when severe drought is in progress (i.e., when the group of people are water deprived) than when sufficient water has been received. However as the drought increases so does the probability that rain will occur. At some point, the group approaches the severe deprivation condition and dances. Probabilistically, the rain follows. Even though the two events are functionally independent, the dancing is reinforced since it was displayed (probabilistically, again) before the rain. The behavior may be displayed again in related contexts.

A similar situation might occur to the observer of ground-level UFO displays. Because of the short periods of the display, alterations in the characteristics would have more immediate reinforcement effects upon the observer. For example, suppose the person sits in his car and watches the display. The luminosity blinks on and off in a variable manner. For a few minutes there is no apparent light. As time since the last onset increases, so does the probability that the light will reappear and that the person will say something about the light. The person may say to his companion, "it should appear soon" and within a few seconds the object appears. Although the appearance is quite independent of the observers, the activity might be interpreted as the UFO's ability "to read your thoughts" or "listen in to the conversation" and related anthropomorphic interpretations. Interestingly, these accidental contingencies need occur only once or twice for the behavior to be strengthened. Few investigators ever really test the hypothesis by repeating their behavior several times.

The problems of superstitious conditioning or variable interval conditioning (both of which are difficult to extinguish) have appeared many times in the history of man whenever short-interval, variable interval and cascading natural events have occurred. The number of human lives that have been directly or indirectly lost by normal human responses to these

stimuli must be very large. For example, suppose a natural event similar to the one suggested in this chapter occurred during the Middle Ages in Europe. Let us assume that because of the accumulating stress factors in the area, unusual phenomena began to occur and were manifested for a two-week period. Because of the assumed nature of the phenomenon the number of separate events increase (time between events decrease) as the interval progresses until the subsurface factors are released or attenuated. The human beings in surrounding areas would most likely dismiss the first few events as hearsay or accident. However as the events increased in number the anxiety associated with unknown stimuli would increase. Because the events are presented in variable numbers, large arrays of different explanations and answers may be given and superstitiously reinforced. As the natural events become more bizarre, the anxiety and disruption of social behavior becomes more acute. Once the devil, or other supernatural explanation has been given, a typical response would be to remove the source. A member of the group may be chosen as the source. The selection would be based on "the odd is related to odd principle." Hence people who have shown unusual behaviors in the past may be selected and the group engages in some ritual. The natural events, that would have disappeared anyway, shortly decrease their frequency and the anxiety stimuli are removed. As a result, the behaviors displayed by the group just before the "disappearance" of the events are reinforced. Cultures are replete with rituals related to natural events (volcanoes, eclipses, earthquakes).

It should be remembered that the human observer's contribution to the phenomenon may involve direct features as well. Human beings are mobile, two-meter-high "semiconductors" that are likely to approach unusual events. Movement in the proximity of the column could certainly alter local electrical characteristics and the kinetics of the column (especially small columns). In this situation, the movement of the phenomena in a manner systematically related to the observer's movement would be interpreted as evidence for "intelligence." The event may be perceived to "move away" when approached and hence be evidence that "they want to be left alone," and so on.

Direct Effects

Direct effects of electromagnetic columns, especially

large ones, upon the human being would be considerable; they would occur only within optimal proximity, whether by the close approach of the human, or the coincidental "approach" of the column. Depending upon the width of the column and the EM potentials involved, the human organism could be affected seriously.

Threshold Electric Field Effects. Human beings standing near or within a column displaying high potentials would report behaviors typical of high-voltage, low-current field exposure. Reports of tingling and other odd sensations, oppression in the chest, hair standing on end, or odd smells (ozone) would be expected. If the field had low frequency modulation, direct autonomic stimulation would be expected, such that intense fear responses or "I'm going to die" responses would be likely.

Paralysis, Epileptic-Like Aura and Blackout Effects. At high voltages, the adjacent human "semiconductor" may become paralyzed or lose body tonus. Periods of paralysis with concomitant dreamy states have occurred when low currents were applied directly to the brain or body. These dreamy conditions, not unlike epileptic auras (the experiences that occur before epileptic discharges), may include sensations as if the body was floating, or as if the self was leaving the body, alterations in time sequences, or sensations of meaningfulness or "cosmic significance." The latter sensations can be induced in human beings by stimulating limbic structures of the brain with weak electric currents. In light of the present labels for unusual events, one would expect frequent reports of "intense psychic experiences" such as out-of-body experiences, "feelings of communion with God," "being at one with the universe" or feelings that something terrible is about to happen.

The paralysis may be variable and range from mild weakness (hypotonous) to an inability to move-something similar to nocturnal akinesis. However a more important aspect of the column-associated stimulation would be the changes in the parts of the brain involved with dream-like images. As mentioned, stimulation of the limbic system (which involves the amygdala and the hippocampus) could allow release of intense images into the private experiences (awareness) of the observer. Stimulation of the hippocampus is known to release dream-like images into awareness. These sequences of images are so vivid that a person may consider them veridical. It has been suspected that the induction of rapid eye

movements (associated with dreaming) in the waking state through direct or chemical stimulation may be responsible for the reports of "hallucinations" and dreamy or "unreal" experiences displayed by many people. In some respects, these occurrences are so frequent they could be considered normal.

Direct stimulation of the brain also could induce epileptic-like auras. The specific brain locus stimulated would depend upon a number of local factors such as level of polarization in brain areas, orientation of the head to the column, and the vectors of current induction. Induction of foci in different functionally specific portions of the brain would be associated with their respective modality experiences. Stimulation of the visual cortical areas could elicit visual experiences. However, one of the more important areas would include the temporal lobe structures (both cortical and subcortical) which appear particularly prone to electrical instability. Transient epileptic foci induced in this portion of the brain could elicit very complex and extraordinarily vivid sequences (especially if the hippocampus is involved). Epileptic stimuli in the vestibular area is known to induce vertigo, clouding of the visual field and inability "to find where one is located." Auditory experiences associated with epileptic auras range from simple sounds to complicated sequences of language or instructions to the perceiver. In many instances, the person may experience a "language" that he does not understand or that appears indecipherable--a phenomenon also reported to occur during dreams. Electromagnetic induction of auditory experiences is not isolated to epileptic foci. Frey (1962) found that very low intensity pulsed (20 to 400 pulses/sec) radio frequencies can be associated with sound experiences like a "buzz," "clock," "hiss" or "knocking" as well as "pins-and-needles" sensations.

Stimulation of adjacent cortical modality projection centers has been known to be associated with experiences characteristic of that area. Epileptic discharges in olfactory regions of the brain are most typically associated with disagreeable odors such as "rotten eggs" and "horrid smells." Induction of visual information in an unstable pattern could evoke an entire sequence of complicated visual images ranging from seeing phosphene-like patterns to complicated human figures. It should be noted that epileptic auras can involve a type of desynchrony between the modalities. For example, the humanoid hallucination may appear to speak without moving the mouth. In this situation, an ad-hoc explanation might be "telepathic communication."

For reasons that are not clear, epileptic auras often involve experiences of modified humanoid forms. These modifictions range from reporting experiences of "little men" to altered body structures (human beings with large heads, altered facial features, no head, no hands, hairy monsters). The range and complexity of the experiences are quite broad and reflect the learning history of the patient. For example, Crosby, Humphrey and Lauer (1962) report one young woman's experience of seeing a "little man dressed in striped trousers that followed her around." One wonders what the diagnosis would have been had she experienced the aura in an isolated wood near a luminous light rather than along a downtown street.

If the EM column was more intense, the induced experiences could be followed by an actual seizure and/or blackout. At the high-voltage (and low-current) levels suggested by the present model, unconsciousness could quickly follow. Like more conventional forms of "convulsive shock," the period just before the blackout would be affected most. Recall of the details of those few minutes just before the shock may be difficult for the subject. In fact, the subject may experience total or partial amnesia of the events. Amnesia is not uncommon in sudden brain traumas whereby the labile and short-term electrical coding of recent information is prevented from long-term consolidation and recall. Severe shocks might elicit anterograde amnesia in which the person may have "no memory" of the interval between the stimulus and later "regaining" of awareness.

Electric shock-induced periods of amnesia can be filled in with confabulation that would be indiscriminable from other memories to the perceiver. The type of information would reflect the learning history, specific information associated with the nature of the unusual situation, and ad hoc verbal labeling. If the person had been in a hospital ward, confabulations/fantasies recalled about the behavior of staff just before the shock would not be considered unusual since the content would be quite probable within the context of the hospital setting. However, if the person had been adjacent to an unusual light associated with UFO stimuli, then the amnesic intervals would be filled in with details that would be given special attention. Information acquired from incidental learning or reading (briefly or partially-observed items in the news media) would be especially influential. Like the epileptic aura and post-traumatic recalls, the details of the period around the blackout would be prefaced by

the dream-like nature of the experience. Many UFO encounters or abductees report a dream-like condition during the alleged contact with the aliens.

Also, one might expect that details of the recall would contain allusions to those parts of the body most influenced by the activity of the EM column. The effect would be similar to the general pattern of details experienced in a dream as a function of the external/internal environment. If you are dreaming in a room that is cold, you may have dream sequences of running nude in the Arctic. If you are dreaming and have congested lungs, you may dream about someone sitting on your chest. One actual case involved a young boy who developed acute pneumonia. He reports a dream where he was alone in a boat surrounded by trees at the tops of which were people throwing rocks at his chest. The rocks hurt when they hit; early the next morning, the patient awoke with acute respiratory discomfort.

In the UFO situation, if the EM column stimulated the top of the head (a likely discharge point), the person could remember a series of images such as "aliens placing equipment on his head" or "samples taken from his head." Direct effects of the respiratory system may result in images like "something was placed on the chest as a part of the test." Stimulation of the genitals--a part of the body that seems frequently incorporated into dream material and dream fantasies--would result in dream images like "the aliens took samples from the genitals." The extremely close similarity between the UFO experience and the ordinary dream experience is an important point. Reports of floating (either of the perceiver or aliens in the dream), sudden appearance and disappearance of objects, and the free-associative jumping of image sequences are common. In the latter situation the free-associative jumping could be rationalized by "they kept putting me to sleep and I kept waking up in different situations." The person might remember an operating table, then another part of the space ship, then being in a strange place with trees, buildings or space ships and then on the ground again.

The severity of the shock and the duration of the amnesic episode would be influenced by the rate of current induction in the human observer nearby (or observers; two or more people could be involved and should, before they talk to each other, have significantly different recalls of the experiences). If the EM column was charged to levels sufficient

to produce luminous displays, close approach of a two-meter-tall human "conductor" would be analogous to a single tall tree on a flat plain during a severe thunderstorm. As the human approached the column, a discharge could occur directly to the person and "knock him out." More distant observers might conclude that a "bolt shot out of the UFO" or the "UFO shot the subject" or offer some other zoomorphic interpretation.

The ensuing amnesia could last from a few minutes to days. The person may "suddenly become conscious" in a standing or lying position at some later time with complete amnesia of the episode. During the amnesia, he would be quite capable of complicated motor movements, even speech. Epileptics, for example, may display complicated motor sequence--even perform surgery!--although these episodes are followed by global amnesia. It is not surprising then that the person would be alarmed when "he suddenly awoke." The anxiety associated with the loss of memory (the reference point of experience) and the nature of the experience may be so intense that the entire behavioral sequence (including confabulation/fantasy) could be suppressed and the person could not "remember." However as he relaxed, the suppressed behaviors would be displayed again.

There is nothing unusual about the behaviors I have described. Such behaviors would be expected. What is unusual is the manner in which the behaviors are interpreted because of their odd or emotionally loaded context.

One necessary aspect of the model involves lethal consequences from close electromagnetic-column encounters. In the previous paragraphs, the assumption has been made that the EM intensities are sufficient to induce localized electrical instabilities in prone portions of the brain (and thus inundate the person with rich, private experiences and images) or to elicit simple paralysis or unconsciousness. On a statistical basis, one would expect that the larger EM columns would be sufficient to electrocute a human, even though the nature of the mechanisms require high electric field potentials and very low currents.

However, if the person was standing in a conductive area with direct contact--was barefoot for example--induced current could produce death. The postmortem would reveal nothing unusual and if there had been no other witnesses the diagnosis probably would be "death by lightning." Peripheral

burns and muscle lesions would be concomitant symptoms. Incidents where the brain of the victim could be analyzed quickly would demonstrate evidence of "electrocution syndrome' typified by proliferation of small holes throughout brain matter. Conductive materials on the body, cigarette lighters, belt buckles, should be melted or demonstrate signs of "arc welding" or "spot welding." One would expect that such reports would be infrequent since the number of conditions that must exist for this to occur (e.g., high conductivity area, grounding of subject, and overlap of a large EM-column space with a person's space), have very low probabilities of occurrence. In addition, such deaths would be diagnosed within conventional frameworks, e.g., electrocution by lightning or high tension wires.

However if the person was situated upon a good conductor, such as a ship, the effects could be quite different. The occurrence of a large EM column over water would have a variety of effects. First, because of no intervening objects (like trees), it would be more easily observed--a factor that may contribute as a confounding variable to the report that low-level UFOs occur frequently over water. Secondly, the presence of the metallic object (ship) within the relatively homogeneous electrical gradients over the water would produce more extensive field deviations for greater distances from the ship and hence increase the likelihood of interaction from the nearby EM column.

As the EM column approached the ship, deviations in compass needles, failure of radio communication (due to "static" on all wavebands), and disturbances in intricate electrical apparatus would occur. As the electrical field strength increased, occupants of the ship would begin to experience "prickling sensations," breathing difficulties and high voltage-related effects. Discharges could ignite fires in petroleum fume (engine) areas or produce large explosions. Direct brain effects would be similar to those reported previously including the experience of vivid images and nightmare dream sequences. If the EM column was intense enough to produce luminosities, then the ship would be seen as "engulfed by a luminous light" or "approached by a luminous light." If the effects became too intense, simple avoidance or escape responses would be displayed by the human beings on the ship such as jumping overboard. Later, people would find the ship floating without anyone on board. On the other hand, if the EM column approached quickly and sudden and intense currents were induced within the outer layers of the ships hull/

walking surface, the crew could be electrocuted. In such instances, evidence of spot welding (e.g., metallic objects such as pails permeated by small pin-point holes) should be evident.

The upper altitude of the EM column has not been specified. However, drawing from knowledge about earthquake lightning, one would expect that significant gradients could be induced up to several thousand feet. In recent years, intense earthquakes have been preceded by significant alterations in lower ionospheric conduction although such changes can be explained by other models. If the EM column could extend to airplane altitudes, then aircraft in the vicinity could be directly affected. Aircraft flying through the region could act as external charge collectors, thus allowing the "sudden appearance of a luminosity" at the area geometrically suited for discharge such as the wing tip or tail tip. Predictably, as the plane moved, the luminosity would move in the same direction and the conclusion that "it was following the plane" would be likely.

Direct effects upon the passengers/pilots would be similar to the changes already mentioned and would be a functioning (primarily) of intensity. A simple blackout of the pilots would be sufficient to seriously affect the safety of the passengers. If the airplane had fuel leaks or areas of fuel fume concentrations, then simple sparking could be sufficient to initiate fires or explode the aircraft. Just before the event, loss of radio communication (static or radio dead spot) would be apparent.

Ionizing Radiation Effects. Since the luminosity could involve plasma-like characteristics and presumably high EM intensities within a small area, ionizing radiation especially in the ultraviolet (UV) range would be likely. If the field strengths were sufficient to produce the luminosity, then the values could be sufficient to elicit ionizing radiation in the vicinity of the column. The close proximity of a human observer to the column under these conditions could produce biological alterations. The extent of the damages would be a function of proximity to the column and the energetic nature of the column. Especially bright luminosities (blinding light) should be more effective (as a rule) than the lower-level pulsating types.

Typical UV-related symptoms would be reported. Inflammation of the eyes and temporary and partial loss of

vision would be apparent the following day accompanied by soreness and irritation. Portions of the skin not protected by clothing or where the clothing touched the skin may become red (sun-burn like) and later be followed by swelling and itching. Depending upon the extent of the exposure, the person may show a sunburn sleeping pattern whereby sleep is characterized by "tossing and turning," repeated awakenings and a low-level feeling of sickness and nausea. Vomitting could occur in some instances.

The mechanisms are unclear by which radiation such as gamma rays or X-rays could be generated. These would be significantly more lethal and could be associated with different symptoms with longer delays of manifestation. For example, following the initial symptoms, recurrent effects would become apparent two to four weeks later. The biomedical symptoms would involve loss of appetite, alterations in white blood cell counts, increased susceptibility to infection, general malaise (which could be interpreted as excessive depression) and related effects. Regression hypnosis or lie detection are hardly effective treatments for such cases; treatment for radiation sickness would be more appropriate.

REEVALUATION OF A CLASSIC CASE

Most, if not all, close-encounter episodes could be accommodated within the model described above. Direct application of the model to a specific, well-documented case might allow a more thorough understanding of the basic theses involved. The case selected for examination is the 1975 Travis Walton incident; the case is recent, involves multiple witnesses and displays typical patterns of other encounters.

The Travis Walton Incident

This purported close encounter with a UFO has been considered by some UFO researchers to be one of the best documented and least likely fraudulent episodes on record. Exact details of the case appear to vary widely, depending upon the reporter and the essential bias of the organization he or she represented. In this chapter, the details from the Aerial Phenomena Research Organization (APRO) have been selected. More detailed information can be obtained from the APRO Bulletin (November 1975) and a recent book by Walton himself (Walton 1978).

The incident is reported as follows. At about 6:15 p. m. on November 5, 1975, seven young men (ages 17 to 28) were driving along a logging road about 15 miles from Heber, Arizona. A few hundred yards from where they had started, one of the men saw a yellowish glow through the trees. As they approached the glow, they saw something luminous in a clearing about 75 to 90 feet from the road. The luminosity was about 15 or 20 feet above a pile of wood and was about 15 feet wide and eight feet high. Young Travis Walton jumped out of the truck and ran towards the light and stood near it; later the other men reported hearing sounds like beeping, generator noises and rumbling. As Walton began to move around the object, a greenish light struck him in the head or chest; the jolt knocked Walton about a foot into the air; he fell to the ground. The whole incident took about one minute after which the remaining men quickly drove away and then returned about 15 minutes later. Walton could not be found.

A few minutes after midnight on November 11, Walton telephoned his relatives from a service station about 12 miles from the area of the encounter six days previous. He sounded weak, vague and confused. Later he drank large amounts of water, ate some cottage cheese and complained of nausea. Walton was in a distressed state for several days following the incident. Tests administered to him demonstrated normal personality characteristics; the statement is made that Walton was not suggestible but this is based upon a questionable measurement (Rorschach test) for the behavior.

Walton related the following series of incidents that he thinks occurred during his "disappearance." After the light hit him, he regained consciousness lying on a table; the ceiling was very close and light came from it. There was some sort of apparatus lying on his lower chest and he had considerable pain throughout his body, especially his head. Around him were three humanoid creatures, all about five feet tall, with large eyes, no hair and small noses, mouths and ears. The remainder of the episode involves Walton wandering through the "spaceship" viewing a chair with push buttons on it, encountering a man who smiled, and traveling through an airlock where he could breathe normally. He remembers viewing several saucers parked in an area and other humans in the vicinity. At this point something like an oxygen mask was placed over his face and he lost consciousness; when he awoke he was lying on his back on a road.

Within the contexts of the model discussed in this paper, the above incident could be reinterpreted in the following manner. A luminosity associated with massive electrical discharge similar to a display of earthquake lightning was viewed by some young men. The potential energetic levels must have been quite large since the visual component itself occupied about 27 cubic meters (942 cu ft). A number of sonic stimuli were associated with the luminosity. Rumbling noises, perhaps associated with subsurface adjustments --a frequent noise in EQL zones or before minor seismic occurrences--were also heard. One of the men (Walton) ran toward this high intensity gradient and stood there. The situation was similar to a two-meter semiconductor standing alone in an open, flat area adjacent to an extremely localized, high-intensity electric field. An electric discharge took place between the column and the nearest apex of the conductor (the man's head/chest). The intensity was sufficient to induce massive neuromuscular discharge (depolarization)--forcing the man into the air (briefly), and into unconsciousness. After being knocked to the ground, he may not have been visible to the other men, already emotionally aroused.

These men drove away quickly and returned within 15 minutes (the reports actually vary). During this period, the motor (neuromuscular) components of the man who had been struck by the EM-column discharge became operable and he walked away from the area. His behavior would be similar to "shock" conditions and the incidental viewer would have labeled him "in a trance" or "sleep walking." During the ensuing period, he may have walked significant distances or remained in a particular area. Available foods and water could still be ingested but there would be no evidence of "awareness." No doubt, he would become dehydrated.

A few days later, the man falls down (most likely from exhaustion); when he "awakes" he cannot remember what has happened during the last few days. Like many amnesia or shock patients, this subject also displays a vivid dream-like experience that is a composite of fantasy, previous associations with the unusual events (preceding the unconsciousness) and actual details. All this information is involved in a typical dream-logic whereby actual temporal sequences and spatial relationships are markedly distorted. The details, like normal dreams, involve images reflecting the parts of the body stimulated. Since the head received a major portion of the initial discharge from the EM column, proprioceptive stimuli from this portion of the body occur in

the recall material. Respiratory arrest or disruption that very likely followed the intense electric shock (and may have produced transient hypoxic effects as well) would be reflected in the images of "an object on his chest" and in the feelings that "the air in the room seemed heavy and moist" and that there had been "severe difficulty breathing."

The details of the confabulation associated with the amnesia display the free-associative and "jumping" characteristics of dreams. Like many dreams, the contents are related by "emotional" or "affective" similarities rather than logical or sequential ones (for example, dreaming about a car may be associated with a series of images of all the cars the dreamer has owned as well as other details that share the same emotional tone; this basic brain operation has been called state-dependent memory).

Consequently, information associated with the word "UFO" is elicited. Various humanoid images, star maps, pilot control chairs, airlocks, helmets, and a parking area for spaceships would be examples. The humanoids displayed the characteristics of the usual stranger in dreams: "aloofness" (not disturbed when signs of aggression were shown), smiles and beckoning. The actual time duration of the processes involved with these fantasies would have involved only a few minutes, most likely immediately before he walked away from the site in a dissociative condition. There is no doubt the experience would be real to the subject, especially considering the context in which it occurred. It would be an inappropriate as well as a fruitless endeavor to determine if he was "lying."

This person should not be considered psychotic or deluded or weird. Instead the seriousness of the biological-behavioral effects from the close encounter with an intense and potentially fatal natural phenomenon should be appreciated properly. The "memories" of the event and the behaviors associated with it should be considered normal within the context of the actual intense physical stimulus, the traumatic consequences and the verbal labels most likely used by the subject to implicitly or explicitly describe the odd light. A similar consequence could have happened to any human being who had been careless (or ignorant) enough to approach this intense, natural event.

Conclusion

Was Travis Walton taken away by aliens or was he traumatically influenced by an electric shock from a natural phenomenon that could have killed him? The answer is insoluble since the event has already occurred and there is no reliable way to explain this incident without incurring the pervasive dangers of after-the-fact conceptualization and rationalization and without using as the primary measure Walton's private responses (memory)--a measure that is highly unreliable in the context of traumatic stimuli. Certainly, the reinterpretation is not proof of the mechanisms suggested. However, this reevaluation is based upon the same data used to postulate a variety of other explanations.

FINAL COMMENT

A theory has been presented in this chapter to accommodate some of the more intense and physical events sometimes associated with close UFO encounters. The assumptions of the theory are based upon known electromagnetic principles in general and the less clear mechanisms of earthquake lightning in particular. The presence of strange, complex dynamics of the luminosities that are associated with subsurface stress are more likely to reflect the unusual and complex nature of the interactions of applied forces than aberrant or unnatural mechanisms.

A few qualitative predictions have been made concerning the physical and behavioral effects of these hypothetical EM columns. However these statements are still much too general and must be supported many times and in many ways with quantitative evidence. Any potential contribution of this theory will be eliminated if the reader attempts to accept it uncritically; one should severely and quantitatively test its specific predictions. Because of the nature of the mechanisms involved, the onus of this task will lie heavily upon the specialists in the physical sciences. Massive interlocking of available space-time UFO data with seismic and geological characteristics of several test areas must still be completed. Like other specific proofs of science, the actual work must be left to the specialists and not to the pulp writers and avid believers in quick answers.

A major feature of the behavioral consequences of the theory is the normal and natural processes involved. As

mentioned in previous chapters of this book, the confounding effects of the verbal human being have been a major source of the elusiveness of the UFO problem. Within the context of this theory, the paralysis, epileptic aura-like experiences, proprioceptive sensations, and interpretations of intelligent action are normal consequences of humans in close proximity to intense, transient electromagnetic forces. If the mechanisms were more clear and the phenomenon more frequent, such as lightning, then the over-reactive mystery surrounding these events would not be evident. However, mechanisms lose their clarity in the midst of an unusual and unexpected stimuli.

The history of science contains repeated instances of infrequent, natural phenomena (volcanoes, eclipses) that generated a complex series of superstitious behaviors within human cultures. Often these behaviors were reinforced by accidental death or injury associated with those events. Within our comfortable and safe presentday perspective, we can comment about the "superstitious" behavior of our ancestors. We are no longer amazed by myths describing someone who saw a dark cloud upon the top of a hill, ran up to "greet it" and was struck by the gods for his impudence. We know now that he functioned as an electric conductor for the discharge of the thunder cloud. The man's memories when he awoke (if he awoke), severely burned and aching, about "floating in the air" after the bolt hit him and talking to the gods of Olympus are no longer impressive. We now understand a little more about the traumatic effects of electric shock upon recall of odd stimuli. As systematic and dispassionate analyses are used, many natural phenomena have lost their bizarre interpretations. The theory in this chapter implies that close UFO encounters involving physical injury and behavioral modifictions is another of these infrequent, transient, terrestrial events that have been occurring for millenia.

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HAROLD A. CAHN, Ph. D., researcher

Dr. Cahn received the B. A. degree from the University of Minnesota (1947), the M. A. degree from the University of Wyoming (1949), and the Ph. D. degree from the University of Iowa (1961) in medical physiology. He has taught at several universities and colleges since 1948 and is a member of Sigma Xi, the American Society for Psychical Research, and the A. A. A. S. He also serves as a consultant to the Aerial Phenomena Research Organization. Dr. Cahn has published over 14 scientific articles and is cited in American Men of Science and the Directory of Parapsychology. As director of the Potential Research Foundation, Dr. Cahn trains people to shift mentation for healing, and investigates the nature of "magic mentation" and its energetics.

"My major interest is in how consciousness interacts with matter/energy. I study anomalous experiences for clues they afford about this process. Among the experiences I consider anomalous are psychic phenomena, the UFO experience, and unorthodox healing. These are novel events in a much larger class I call winding phenomena. All winding phenomena involve intentional interaction of consciousness with matter/energy. I have had psychic experiences, can produce minor examples of them, and am deeply involved in investigating alternative healing. Yet I have never had a UFO experience."

RICHARD M. COFFMAN, M. A., professor

Major Coffman completed the M. A. degree at the University of Denver in 1972. Since that time he has continued his studies toward the Ph. D. degree at the University of Colorado. Formerly an assistant professor of anthropology at the U. S. Air Force Academy, Mr. Coffman is presently at Rutgers University where he is deputy professor of aerospace studies. Mr. Coffman has taught courses in introductory anthropology, ethnology, sociology, and social psychology. He has coauthored a paper on the changing American sex ratio and has published several poems.

"I believe something genuine lies at the core of the mass of UFO sightings. Like Schliemann's efforts in locating the legendary city of Troy at Hissarlik by means of an in-depth understanding of homeric literature, the UFO-mystery will probably be solved by the same approach on the part of investigators and researchers. I will bet a few paychecks that the answer will astonish ufologists and laymen alike."

PHILLIS FOX, Ph. D., professor

Dr. Fox received the B. A. degree in social science from the University of Chicago in 1966, and in 1969 the M. A. and in 1974 the Ph. D. degrees from Northwestern University in the field of sociology. Her areas of specialization include the sociology of work, methodology, and statistics. Dr. Fox has conducted both pre- and post-doctoral studies and participated in an Inner Innovations Symposium through Miami-Dade Community College (1970-1974) as well as other specialized workshops. In addition to teaching advanced courses in various fields of sociology and performing advisory duties with her students, Dr. Fox has served on the College's Sociology Department Curriculum Committee (since 1974), the Senate Committee to Evaluate Administrators, the President's Ad Hoc Committee on Career Planning, and other official bodies. She is a member of the American Sociological Association. In addition to chairing a technical session on the "Sociology of UFOs" at the 1976 Western Social Science Association Meeting, Dr. Fox has submitted articles to professional journals and is currently preparing a text on statistics.

"As a person eager to visit other planets, I would never dismiss the possibility that UFOs are really extraterrestrial spaceships. As a cynical sociologist, however, I am unconvinced by the evidence, which consists essentially of eyewitness reports. Unfortunately for my travel plans, even honest eyewitness reports by sober and responsible people are influenced by a host of cultural and social factors. The effects of these factors have not been examined sufficiently to disprove the possibility that flying saucers are simply social constructs. In the meantime, if you are out there, Venusians, I am ready!"

RICHARD F. HAINES, Ph. D., scientist

Dr. Haines was born and raised in Seattle. He attended the University of Washington in engineering (1955-1957), Pacific Lutheran College, Tacoma, in psychology (B. A. degre

in 1960); and Michigan State University, East Lansing. He received the M. A. (1962) and the Ph. D. degrees (1964) from M. S. U. in experimental psychology/physiology. After a three-year tenure as a National Research Council postdoctoral resident research associate at Ames Research Center-NASA, Moffett Field, California (1964 to 1967), Dr. Haines joined the research staff at Ames in the Life Sciences Directorate. He has conducted a wide variety of laboratory investigations on such topics as visual performance of man in space, perceptual functioning, illusory performance, whole-body equilibrium resulting from simulated weightlessness, positive radial acceleration induced changes in visual function, and others. Dr. Haines is the author or coauthor of more than 55 scientific articles and holds two U. S. patents. He is cited in American Men of Science, the Dictionary of International Biography, Who's Who in the West (as well as eight other biographies) and serves as an editor of UFO Phenomena (Bologna, Italy) and as associate editor for Kronos: A Journal of Interdisciplinary Synthesis.

"While I do not yet have enough information concerning the core identity of the UFO phenomena, I do believe it is subjectively real--i. e., that the thousands upon thousands of eyewitnesses have experienced something that any other human being with normal sensory capabilities would also have perceived. The wide variety of reported characteristics of these predominately visual 'objects' suggests that there is a cognitive component to them that brings into play deeply submerged, subconscious "proto-symbols" (in the sense of being one of the earliest forms of fundamental symbols); these proto-symbols probably lie buried deep within the consciousness of mankind. I firmly believe that through the application of systematic scientific procedures, we will uncover the core identity of the UFO phenomenon, whether it turns out to be extraterrestrial, intracranial, or some other possibility. I hope that the present work will assist in this goal. "

FREDERICK V. MALMSTROM, Ph. D., human engineer

Dr. Malmstrom received the Ph. D. degree from Oklahome State University in 1978. Before that he taught at the U. S. Air Force Academy (as an assistant professor of psychology). He is currently attached to the Rome Air Development Center, Rome, New York. Dr. Malmstrom's laboratory research background includes studies of physiological and psychophysiological mechanisms of the human eye's focus response with particular emphasis upon the influence of visual imagery. He has published several scientific articles and

maintains a continuing interest in the anthropological dimension of UFO phenomena.

"I would be delighted if a flying saucer, complete with crew, were to encounter me either on a lonely country road or in downtown Fresno; however, I have neither seen a UFO nor seen hard evidence that UFOs are the result of extraterrestrial visitations. On the other side, the sheer mass of UFO occupant reports suggests to me that an acceptable explanation of the UFO phenomenon lies somewhere between the extremes of either extraterrestrial visitations and pure madness. Past UFO investigation procedures have been inconsistently, and in some cases, sloppily conducted; witness Project Blue Book. I feel strongly that no reasonable explanation will emerge until the data-collection procedures are rigorously tightened up."

MICHAEL A. PERSINGER, Ph.D., professor

Dr. Persinger received the B.A. degree in 1967 from the University of Wisconsin, the M.A. degree in 1969 from the University of Tennessee, and the Ph.D. degree in 1971 from the University of Manitoba in the field of experimental psychology, with minors in physiology, control systems theory, geomagnetism, and the biology of aging. The author has taught numerous university-level courses in fields related to experimental psychology and physiological psychology; he serves as an editorial board member for The Journal of Research in Psi Phenomena, and is a member of many professional organizations, including the Canadian Psychological Association, the A.A.A.S., the Parapsychological Association, the International Society of Biometeorology, and the American Society for Psychical Research. Dr. Persinger has authored over a dozen articles and coauthored two others. He edited ELF and VLF Electromagnetic Field Effects (New York: Plenum Press, 1974) and authored, with G. F. Lafrenière, Space-Time Transients and Unusual Events (Chicago: Nelson-Hall, 1977), as well as four text chapters and two other books.

"The apparent elusive and insoluble characteristics of the UFO problem are primarily a function of the indiscriminant and emotionally-loaded verbal labels applied to observations and concepts of odd stimuli. Few investigators of the UFO problem have been qualified technically to understand that human behaviors (including "thinking" and "memory") are disrupted, altered and suppressed in the context of unusual, unexpected, infrequent and anxiety-eliciting stimuli. Ad hoc measurements such as solicited recall, sincerity

evaluations, polygraph tests or alleged hypnotic regressions do not demonstrate the validity of the report contents. The methodological limitations of human behavior in the above contexts are so numerous that UFO-related verbal sequences collected after the event have little empirical value and exacerbate the confusion. When the limitations of human verbal behaviors are considered, the remaining UFO data primarily involve burned vegetation, variable photographic shapes and some general electromagnetic phenomena all of which can be produced by a variety of natural stimuli. The data at present indicate that close encounter UFO stimuli are probably natural, transient, electromagnetic phenomena correlated with certain geophysical conditions. The oddity exists not within the physical principles involved but within the context through which the phenomena are believed and interpreted."

BERTHOLD E. SCHWARZ, M.D., psychiatrist

Dr. Schwarz received the A.B. degree from Dartmouth College, the Certificate from Dartmouth Medical School (1945), and the M.D. degree from New York University College of Medicine (1950); he also completed a M.S. degree in psychiatry from the Mayo Graduate School of Medicine (1957). Dr. Schwarz' research includes depth EEG and clinical research on the effects of LSD and mescaline, neurophysiological studies on animals and humans, and psychoanalytic studies at the Mayo Clinic. Author of more than 85 professional articles, he has written three books Psychic-Dynamics, The Jacques Romano Story, and Parent-Child Telepathy. He has also coauthored two other books. Dr. Schwarz is a member of the American Medical Association and the American Electroencephalographic Society, and is a fellow of the American Psychiatric Association and the American Association for the Advancement of Science. He continues his private practice in Montclair, New Jersey, and investigates various psychiatric and parapsychological phenomena related to UFO encounters.

"UFO phenomena comprise complex and often contradictory data that span the spectrum of the physical and behavioral sciences. While close UFO encounters have a paucity of hard-core physical data, there is frequently a surfeit of relevant biological, psychodynamic, and psychic material. These relatively neglected data commonly repeat themselves and can also at times be found in the past histories of the UFO experients and their families. Many and possibly all the variegated aspects of the close UFO encounter have their analogues in psi, where similar phenomena occur that can

also defy the usual physical explanations of space-time concepts. Established psychiatric, parapsychiatric, and experimental techniques, which explore the "personal equation" to the UFO experience, support the psychic hypothesis and might be a fruitful area for intensive investigation. As parapsychology might learn much from the study of ufology, the reverse is no less true. Moreover, if man is frustrated in his efforts to fully understand the UFO encounter, these methods should open up exciting tangential areas where he can learn about new dimensions to his own nature and his interactions with matter."

ROGER N. SHEPARD, Ph. D., professor

Dr. Shepard obtained the B. A. degree from Stanford University in 1951, the M. A. from Yale University in 1952, and the Ph. D. degree (also from Yale) in 1955 in psychology. He worked at Harvard as a research fellow (1956-1958), at Bell Telephone Labs as a department head (1963-1966), was a professor of psychology at Harvard University (1966-1968), and has been since 1968 a professor of psychology at Stanford University. Recently elected to the National Academy of Science, Dr. Shepard has also received numerous awards and honors, including an N. R. C. Postdoctoral Research Associateship (1955-1956), a Guggenheim Fellow at the Center for Advanced Study in the Behavioral Sciences (1971-1972), the presidency of the Psychometric Society (1973-1974), and the Distinguished Scientific Contribution Award of the American Psychological Association (1976). He is a fellow of that society and of the A. A. A. S. and a member of the Psychometric Society, the Psychonomic Society, Sigma Xi, and the Society of Experimental Psychologists, and is listed in Who's Who in America (since 1969). Dr. Shepard has been particularly active in publishing in scientific journals (beginning in 1957). He is the author of 38 journal articles and more than a dozen chapter texts. He has also produced technical, computer-generated films and has prepared numerous invited lectures and articles on his research.

"I believe that our present understanding of neither physical nor mental reality is complete. Accordingly, to withhold support or publication of well-conceived studies of unexplained aerial phenomena by qualified investigators seems inappropriate for an open-minded scientific community. Equally inappropriate is a fixation on the particular hypothesis that leaps so readily to the popular mind at this momentary phase of our own technological development. This hypothesis--that UFOs are nuclear-powered ships piloted across space by hu-

manoid creatures who built them on a distant planet--may be not so much too bold and fanciful as too myopic and unimaginative."

ARMANDO SIMÓN, Ph. D., researcher

Dr. Simón is a trilingual native of Cuba. He obtained the B. A. and M. A. degrees from Wichita State University and the Ph. D. degree from the University of Southern Mississippi. He has published several research papers in various psychological journals and maintains research and teaching interests in such areas as multivariate statistics, the effects of the mass media on behavior, and behavioral endocrinology. Currently, he is an Associate Psychologist for the Mississippi Department of Corrections.

"The possibility of UFOs' being extraterrestrial spacecraft is, as far as I am concerned, of less interest than the myriad psychological aspects accompanying the phenomenon. For one thing, it is a more practical way of getting a handle on the UFO problem. For another, the areas of hypnosis, attitude formation, cognitive dissonance, perception, etc. are intrinsically interesting and of more relevance to psychologists. As such, although I do believe in the possibility of life on other stellar systems, I reserve judgment on the identification of UFOs. However, I would like to point out that any research psychologist not agreeing with the above point of view must take the "null hypothesis" as a possibility if he is to remain true to his training, and if he wants his conclusions to have any weight at all. This means that the possibility that the UFOs' origin is purely psychological, and not extraterrestrial, must be taken into serious, equal consideration as any other hypothesis, something which veteran ufologists (some of scientific training) are positively phobic about. There used to be a time when the hint that the observer had misperceived and not really seen a UFO was indignantly rejected as part of the attempt at censorship: all UFOs seen were flying saucers! Now, it is a common procedure to filter out the noise from the signal."

R. LEO SPRINKLE, Ph. D., guidance counselor, director

Dr. Sprinkle received the B. A. and M. P. S. degrees from the University of Colorado (in 1952 and 1956, respectively) and the Ph. D. degree from the University of Missouri (1961) in counseling and guidance. Having taught in the Department of Psychology at the University of North Dakota and the University of Wyoming, Dr. Sprinkle is knowledgeable about numerous facets of the psychological dimension of hu-

man behavior. He is a member of almost a dozen professional organizations including the American Psychological Association, the A. A. A. S., the American Society of Clinical Hypnosis, and others. He has prepared many articles on UFO phenomena and eyewitnesses and has spoken before such groups as the National Amateur Astronomers Association, the American Psychological Association, the National Broadcasting System (symposium for television), the American Personnel and Guidance Association, and others. He has been a member of the UFO panel for the National Enquirer since 1972.

"In my opinion, there is sufficient evidence to entertain the hypothesis that UFOs, or "flying saucers," are craft piloted or controlled by intelligent beings who are conducting some kind of survey of the Earth and its inhabitants. The evidence also suggests that UFO occupants are familiar with advanced psychological and psychical processes. Many UFO experiences are so bizarre or absurd that UFO researchers are faced with inner doubts as well as external difficulties in gathering, analyzing, and disseminating information about the pattern of UFO reports. In my opinion, the display of the UFO experience may serve as a lesson to the UFO observer, expanding his or her awareness or 'cosmic consciousness.' Perhaps, someday, we can gain evidence which tests the claims of persons who experience messages, through 'mental communications,' from UFO occupants. The message is as follows: Humankind is being prepared for important physical and psychic changes which will herald a New Age of scientific and spiritual advancement."

RONALD M. WESTRUM, Ph. D., professor

Dr. Westrum received the B. A. (cum laude) from Harvard University (1966), and the M. A. and the Ph. D. degrees from the University of Chicago in 1969 and 1972, respectively. He has taught at Purdue University (1970-1972) and at Eastern Michigan University since 1972, where he is an assistant professor in the Department of Sociology. Dr. Westrum's areas of specialization include the sociology of knowledge, social organization, the history and construction of social theory, and the history of science. He is the author of numerous technical papers and has participated in several UFO conferences. He is a consultant in the area of sociology to the Aerial Phenomena Research Organization and the Mutual UFO Network. At present he is working on a book relating UFOs, sea-serpents, and other anomalous events to social beliefs about the nature of reality.

"I feel that many events reported as UFOs are mis-

understood natural phenomena, man-made artifacts, or the product of fraud. Nonetheless, there remains a core of sightings which are unexplained. The number and quality of these sightings seems to indicate that they have a material reality, and the nature of the events reported strongly suggests that they represent an intelligence or intelligences superior to our own."