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GEOPHYSICAL PARAMETERS AND UFO SIGHTING FREQUENCIES

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ABSTRACT. Reports of UFO sightings have been assembled into a detailed database spanning many decades of this century (*U* UFO data base). These data which represent a time series of observations within the earth's environment, have been subjected to a comparative study with geophysical parameters. The parameters encompass the high-energy components of the radiation reaching the earth such as galactic cosmic rays (GCRs) capable of producing radiation damage within any matter when subjected to the extremely high energies carried by this type of particle. This preliminary study is based on the assumption that UFOs spend substantial periods of time at altitudes where the radiation shielding of the atmosphere is diminished. However, when solar-modulated GCRs have access to the heliosphere and near-earth environment, UFOs may choose to operate deeper within the atmosphere and sighting frequencies are increased. Comparing these two time series results in a modest but significant correlation coefficient, suggesting that further statistical investigations are warranted.

One of the most striking characteristics of UFO reports is the large variation in their number over time. The level of sighting reports has varied greatly from year to year, for example, there have been many reports in some years, such as 1947, 1952, and 1973 in the United States, 1954 in France, or 1978 in Italy, and in other years there have been relatively few reports, as was true during much of the 1980s worldwide. These wide swings in the number of reports per unit of time were recognized early in the modern era of UFO investigations, and many hypotheses have been advanced as explanations (Bullard, 1988). Societal stress, extraterrestrial interest in the space program and atomic weaponry, and media-stimulated interest in UFOs, among others, have been suggested as possible causes for this variation. No explanation has received much empirical support, and few have had in-depth investigation. This is unfortunate, since it is most likely that this variation is a clue to the ultimate sources of UFO reports.

Data on the physical nature of UFOs are largely either unknown or unavailable and probably represent a continuum of properties that vary with individual cases. Nevertheless, there seems to be a solid component to the phenomenon of UFO observations, which is clearly apparent from extensive ground or landing-trace studies.

(Philips, 1973, Zeller, 1976) Therefore, it is appropriate to examine the record of sightings to determine whether it may contain statistical evidence of direct physical effects. Since matter is susceptible to radiation effects, and assuming that a significant number of UFOs are solid objects composed of normal matter, high-energy radiation is clearly one of the forces that they may encounter in the near-earth environment. The damaging effects of energetic particles on spacecraft, for example, have been recognized since the early 1970s. Cosmic rays (high-energy protons or heavier nuclei) originating in the sun or in unknown sources outside the galaxy can cause electronic circuits to fail by producing radiation damage in solid state components (Ziegler & Landford, 1979).

We may hypothesize that UFOs undergo a similar type of radiation damage and that they most frequently seek shielding within the earth's atmosphere from the high-energy galactic cosmic rays and also from the more infrequent solar cosmic rays, thereby becoming subject to observation.

Given these ideas, and the large variation in UFO reports over time, it becomes reasonable to ask whether various physical parameters correlate with the level of UFO reports. This question is of interest no matter what the ultimate cause of UFO reports. UFO research today is in a preparadigmatic state (see Kuhn, 1970), and one characteristic of such a science is that relationships among important variables are yet to be established—and often what variables are critical is yet to be determined. Therefore, the discovery of interesting relationships between UFO reports and physical parameters remains a meaningful activity for investigators. One such parameter is the radiation environment of the earth.

For this reason, the specific objective of this preliminary study has been to examine the UFO sighting record through time and determine the extent to which it may correlate with trends in geophysical parameters related to solar activity, as represented by sunspots, and galactic cosmic ray flux as measured by neutron monitors. These type of data are, by their nature, totally reliable and objective, whereas inherently any data series of UFO reports is incomplete. Such reports are based on chance observations, and not all observations are being reported. Furthermore, a number of phenomena might contribute to the generation of UFO reports, including misidentifications of planets. Nevertheless, the number of reports are so numerous and global in nature that a statistical evaluation becomes possible. However, any discussion and interpretation of the influence of radiation on UFOs must remain speculative.

THE RADIATION ENVIRONMENT OF THE EARTH

The space environment around the earth is filled with plasma or ionized particles with energies that range from a few electron-volts to above many billion electron-volts. We know that high-energy particles can come to the earth from two major sources. One of these is external to the solar system and is the source of highly energetic cosmic rays, mainly protons, that frequently carry energies greater than one billion electron-volts and are called galactic cosmic rays (GCRs). They have

been accelerated by unknown processes in other parts of our galaxy, perhaps by supernovae (Joselyn & Whipple, 1990)

The other primary source of high-energy particle radiation is our sun itself. During sporadic solar surface eruptions, large numbers of charged particles may be ejected and some of them accelerate to energy levels as high as one billion electron-volts. These particles, frequently called solar cosmic rays (SCRs), travel outward and may be deflected by the earth's magnetic field or they may be intercepted by impacting the upper atmosphere of the earth. Although on average, SCRs are less energetic than those of galactic origin, they may be many times more abundant during peak flux periods. Specifically, at times when intense brightening of local areas on the solar surface produce so-called solar flares, charged particles from this source may escape from the solar surface and exceed the flux of galactic cosmic rays by many orders of magnitude. For this reason, any spacecraft operating outside the earth's atmospheric shield could be subjected to sharply elevated radiation levels for periods of a few hours to a few weeks.

The sun produces, in addition to these sporadic bursts of highly energetic particles, a relatively low-energy plasma called the solar wind. The solar wind can warp the terrestrial magnetic field, producing the magnetosphere. Beyond the magnetosphere, interplanetary space is filled with solar wind particles expanding out past the planets until they come into pressure equilibrium with the interstellar medium, forming the space called the heliosphere. It is conditions in the heliosphere that determine the access of GCRs to the solar system and ultimately to the earth's environment.

Furthermore, the combination of particle radiation and electromagnetic radiation can produce dramatic effects in the earth's upper and middle atmosphere. Above 100 km, molecules dissociate as a result of ultraviolet absorption and can be ionized through the action of charged particles as well. The resulting plasma of positive ions and electrons make up the ionosphere, which extends roughly from 70 km to 3000 km, with the largest concentrations of electrons at an altitude near 300 km (Schunk & Sojka, 1988). The ionospheric layers are responsible for the reflection of radio waves, and the critical frequency for penetration of the ionosphere increases sharply during years of sunspot maximum (Smith, 1967). However, GCRs are the primary source of ionization in the stratosphere down to about 20 km altitude, and may also serve as a major source in the lower mesosphere at night or during solar eclipses (Heaps, 1978). Their range of energy allows them, on a global scale, to penetrate into the atmosphere and produce secondary radiation, i.e., muons and neutrons, which reaches to the surface of the earth. However, the lower energy component of the GCRs have more ready access to the atmosphere at higher latitudes. Since the earth's magnetic field regulates the incoming cosmic rays, in the polar regions the vertical or "open" field lines permit penetration to lower altitudes and thus ionization to take place by particles of less than about 100 MeV.

On a larger scale, perturbations in intensity of GCRs in the earth's environment are directly related to the radiation from the sun and its associated magnetic field. As Ustinova (1995) states, "the dynamics of processes in the solar system are deter-

mined by the solar corpuscular radiation. The solar cosmic rays and, especially, the plasma of the solar wind and solar flares, moving from the sun together with the 'frozen' magnetic fields, create a rigid barrier for the penetration of galactic cosmic rays into the heliosphere, so that the galactic cosmic ray intensity in the solar system anticorrelates with the solar activity."

DATA

Due to the modulation processes originating with the solar wind permeating the heliosphere, the GCR intensity changes with the 11-year solar cycle, and short-term variations are related to solar flare outbursts. The intensity variations of the GCRs capable of reaching the earth can be measured using neutron monitor count rates of the secondary neutrons produced by the primary cosmic rays entering the atmosphere. Neutron monitor stations are scattered at a number of localities ranging from the tropics to both polar regions. Examination of these records shows that although the absolute counting rates vary because of station altitude and location, the form of the time series curves is generally very similar over the whole earth. These data are published in *Solar Geophysical Data Prompt Reports* from the National Oceanic and Atmospheric Administration at the National Geophysical Data Center in Boulder, Colorado.

The sun undergoes a complex 11-year cycle of various forms of activity, which is generally expressed in the variation of the number of sunspots visible on the solar disc, the most obvious manifestations of solar variability (sunspot data are available from the World Data Center at Boulder, Colorado). The quantities plotted in Figure 1a are the mean monthly sunspot number and neutron monitor data from the monitoring station at Climax, Colorado. Taken together, these two data series provide a rough measure of the total radiation flux and energy spectrum in the near-Earth environment. In general, the radiation effects represented by these time series are global and apply fairly equally to all areas on the Earth. Accordingly, the data series can be compared to UFO sightings occurring anywhere on Earth. Figure 1a illustrates the variation in cosmic-ray intensity over the past several sunspot cycles, i.e., approximately 44 years of data, and shows a clear inverse relationship with solar activity over the same period.

No comprehensive catalog of UFO reports exists. One of the best records is the *U* UFO Data Base, developed by Hatch, which consists of more than 12,000 reports of high quality from all areas of the world (www.jps.net/larryhat/index.html). It includes information on each sighting, such as type, location, duration, and so on, and it contains reports through 1995. The record of the frequency of UFO sightings is shown in Figure 1b.

The UFO database is less reliable than the data series for sunspots and neutrons (GCRs). The *U* database is based, for the most part, on English-language publications. Because of this, it contains a greater proportion of reports from North America and Great Britain than occur in the general population of UFO sightings. In addition,

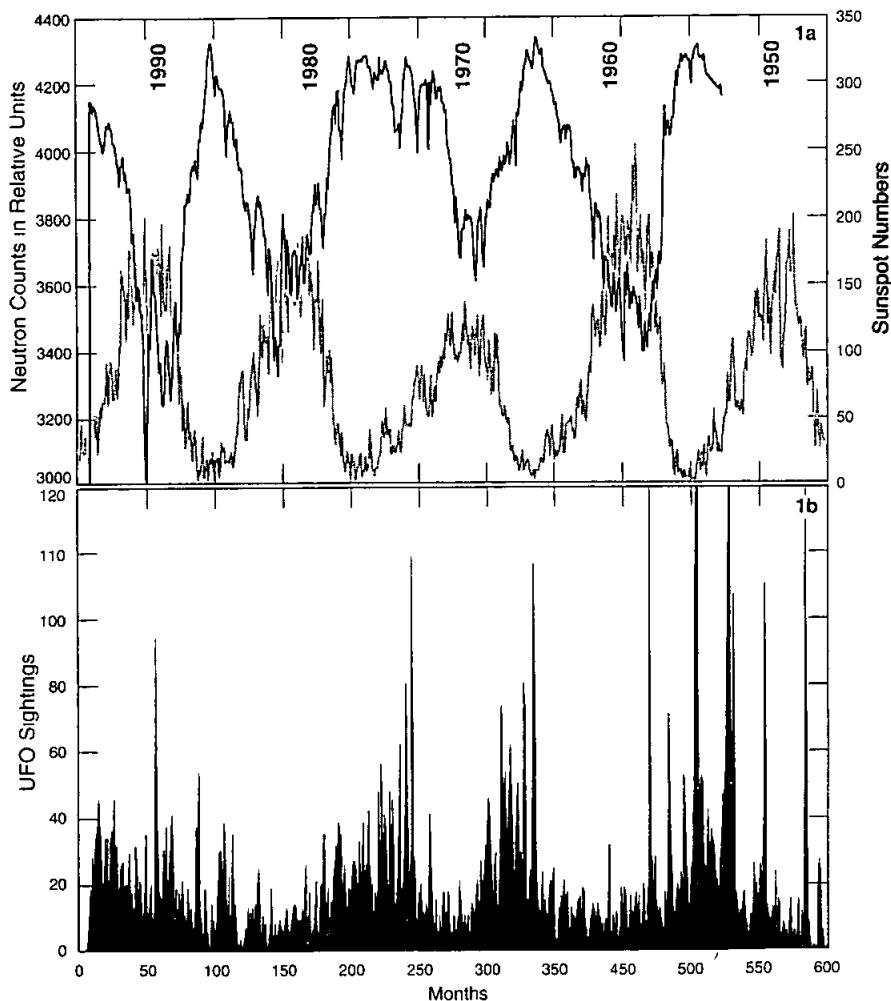


Fig 1 Plotted are the monthly mean sunspot numbers (gray) and the neutron monitor count rate (black) in 1a, compared to UFO sighting frequencies in 1b

other chance factors have influenced which UFO reports are included. For example, the French UFO wave of 1954 was reported by several authors in English or in English translations, and so these cases are included in the database. Conversely, other reports from France in later years have received less English-language coverage and are less likely to be included.

The version of the *U* database we used contains a total of 10,373 reported sightings between 1952 and 1995, inclusive. Since so few UFO reports occur on any

one day, the sighting frequencies have been aggregated to the monthly level for comparison to the two geophysical data series. It is important to note that the great majority of reports in the database are likely to be true UFOs, i.e., not explainable as inaccurate observations of conventional objects and astronomical phenomena. Hatch carefully selected reports that appeared in the published literature, which means that some screening and investigation had occurred in most instances. Thus, although the database undoubtedly contains some sightings of conventional objects, their number is unlikely to bias any statistical analysis. Nevertheless, since some cases that could be explained must be in the UFO database, the correlations between it and the geophysical data series will be attenuated below their theoretical maximum.

RESULTS AND DISCUSSION

The relationship between monthly UFO sighting frequency, GCR flux, and sunspot numbers is shown in Figure 1a and 1b. Inspection of these graphs makes evident the positive correlation between GCRs and UFO reports, whereas sunspot numbers and UFOs are clearly anticorrelated. One of the simplest and most reliable approaches to determine the linear, quantitative relationship between two time series is to calculate the nonparametric Spearman rank correlation coefficient (Porkness, 1991; Harnett, 1975). Table 1 contains Spearman coefficients between all three time series.

The strongest, although negative, correlation coefficient of $r = -0.59$ clearly conveys the close interrelationship between the two time series of monthly sunspot numbers and neutron monitor count rates (galactic cosmic rays). In general, the same variability seems to be displayed by the UFO sighting frequencies, but in phase with GCRs arriving at the earth. This relationship shows a relatively modest, but statistically very significant, correlation coefficient of $r = 0.37$. The much lower correlation between UFO activity and sunspot numbers may result in part because sunspots are only a rough measure of solar energetic particles reaching the earth. The negative correlation with solar activity suggests that times of high solar activity are associated with periods of reduced UFO sighting frequency. This result corresponds to the suggestion, by examining Figure 1 and the correlation coefficient $r = 0.37$, that UFO sightings occur more often at times when cosmic ray flux is highest. A notable ex-

Table 1. Correlation coefficient r between Mean Sunspot Numbers, Neutron Flux (GCRs), and UFO Reports

Data Series	r	Sample Size
UFOs and Neutrons (GCRs)	0.374 ^a	510
UFOs and Sunspots	-0.175	576
Sunspots and Neutrons (GCRs)	-0.594	510

^a All correlations significant at the .0001 level.

ception is seen, however, in 1958 at the maximum of sunspot cycle 19, which is known to have been a time of extremely high solar activity, hence SCR flux

The less than perfect reliability of the UFO database means that the correlations with neutron flux and UFO sightings are lowered by some unknown factor. Thus, this modest correlation should not be necessarily viewed as an indication of a low relationship between the level of UFO activity and high-energy radiation.

Given these correlations, the question is what physical interpretation can be placed on the findings. Within the framework of the radiation environment near the earth we can make the following observations:

- 1 The UFOs are sighted most often at quiet periods in terms of solar activity and therefore solar-terrestrial interactions as opposed to extremely rapidly varying conditions during solar maximum periods when, for example, geomagnetic storms and disturbances of the ionosphere are at their highest.
- 2 The in-phase relationship between GCRs and UFO sightings corresponds to the presence of high-energy particles in the near-earth environment, which in turn, is a measure of the solar wind and associated interplanetary magnetic field.
- 3 Highest UFO activity is coincident with maximum global ionization at stratospheric levels due to GCRs having access to the heliosphere and ultimately to the earth (Heaps, 1978). This period is also characterized by the build-up of highest ionospheric potential, which is a measure of the intensity of the fair-weather atmospheric electric field of the earth (Markson & Muir, 1980).

Clearly, the linear relationship between galactic cosmic ray flux and UFO activity is an empirical one established from data that cover almost five complete 11-year cycles. The basic assumption is that the UFO–cosmic ray relationship for the last few solar cycles can be extrapolated back in time. We cannot know if that is justified or whether the correlation will hold up in the future. It is obvious that multiple factors contribute to the phenomenon. One example is an approximate 5-year variation in UFO reports, which seems to be fixed to some “extra-solar coordinate system” (Saunders, 1976). However, the data as shown in Figure 1 seem to support the view that the relatively long time series of a large number of UFO sightings is primarily modulated by the presence of GCRs in the near-earth environment.

If GCRs are a major contributor to the UFO sighting phenomenon, it is most likely based on radiation damage in solid (inorganic) and organic matter that the high-energy particles can produce in outer space. When particles enter the atmosphere of the earth, it serves as a protective shield for objects operating in space and may be the reason for increased reports of UFO sightings. This hypothesis may only be a partial explanation for the phenomenon, and it will be necessary in future investigations to look at the UFO signal in greater detail. As a matter of fact, the large number of observations or reports contained in the *U* database lends itself to further inves-

tigations by filtering out the apparent 11-year periodicity in the UFO data so that all other periodicities can be analyzed which seem to be superimposed on this cycle.

One other previous study has attempted to determine if sighting reports might be related to various types of physical parameters, including high-energy radiation in the near-earth environment. Accetta (1980) matched specific UFO sightings from UFOCAT, the computer catalog maintained by CUFOS, on a one-to-one basis with specific changes in geophysical measurements, working with the simple hypothesis that UFOs would leave measurable deviations from the normal record. For the most part, he used data from stations relatively near the UFO event. He obtained some evidence that UFO reports were possibly linked with increases in radiation associated with principal magnetic storms, a worldwide geomagnetic activity index, and the appearance of the sporadic E-layer in the ionosphere. No association, however, was found with bi-hourly recorded cosmic ray flux. In summary, Accetta stated that there seemed to be sufficient justification for further efforts of this kind. Comparing individual UFO observations with short-term geophysical data may not be as meaningful as treating the total UFO sighting record as a time series and comparing the temporal variation of the signal from UFO sightings with the signal from several geophysical time series.

CONCLUSIONS

This study shows that when the UFO time series is compared with two parallel time series that respond to variations in particle radiation reaching the near-earth environment, statistically significant modulations can be seen. The time series comprise more than 40 years and involve more than four solar-activity cycles. Particle radiation in the form of galactic cosmic rays seems to be the dominant contributor and only rarely do very large solar proton events influence sighting frequencies. In general, solar activity correlates weakly negatively over more than four solar cycles, whereas moderate positive correlations can be found for galactic cosmic rays. The extended geophysical and UFO records now available to us permit statistical evaluations at high confidence levels. Unfortunately, as seems to be a common characteristic with virtually all aspects of the UFO phenomenon, we are left with a confusing array of possible interpretations. The most obvious suggests that UFOs are real, physical objects that are in some sense influenced by radiation effects, but it tells us little about their internal mechanisms and practically nothing about their origins.

The present research has been exploratory and should be continued and expanded, with the time resolution increased to intervals of one day (or less). Data are available to serve as a basis for such a study, and more advanced statistical techniques need to be employed to analyze these time series for patterns and all underlying periodicities.

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A SEARCH FOR POSSIBLE CAUSAL ASSOCIATIONS BETWEEN UFOs AND PERTURBATIONS IN RECORDED GEOPHYSICAL DATA

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ABSTRACT This paper (reprinted from the *Journal of UFO Studies* vol 2 1980) presents the results of an extensive phenomenological search for perturbations in recorded geophysical data in time coincidence with 73 high-quality UFO reports. The data searched include solar, ionospheric, and geomagnetic recordings routinely archived at the World Data Center, Boulder, Colorado. Conclusions are presented that bear upon the phenomenological association of UFO events to physically measurable quantities. No absolutely consistent trends are found; however, several possible associations are noted.

Editor's Note In 1980 Joseph Accetta published an article on his search for correlations between geophysical data and UFO reports. That article, published in the *Journal of UFO Studies*, Vol 2 (1980), was the most comprehensive examination of the idea that UFOs could influence their environment (as suggested by physical effect cases), or at least that reports would be associated with perturbations in geophysical recordings. Although it has been 20 years since it appeared, Accetta's article never received the attention it perhaps deserved, and it has led to little additional work (although investigations by Persinger and colleagues have examined this issue from one particular theoretical perspective). With the publication of the article by Zeller and Dreschhoff in this issue of *JUFOS*, Accetta's work has now been extended. While not directly comparable to Accetta's study because of the statistical nature of their work, the research by Zeller and Dreschhoff should be contrasted with the former for a fuller picture of the relationship between UFOs and geophysical data. Accordingly, since Accetta's original paper remains obscure, the editors thought it sensible to reprint his paper in the current issue to assist that comparison.

Irrespective of their ultimate origins, unidentified flying object (UFO) reports can be legitimately categorized as a worldwide phenomenon. The phenomenology of UFOs have, in the main, eluded classical scientific investigation primarily because of the anecdotal, spectacular, and sometimes theatrical character of the accounts, and secondly, because of their ephemeral nature. Fortunately, there are sufficient numbers of motivated scientists to whom controversy and deliberate contrivance pose no major obstacles. The second problem, however, presents a rather formidable

challenge to science simply because of the transitory and elusive nature of the events which are totally out of the control of the experimenter and consequently notoriously difficult to deal with If scientific progress is to be made on whatever physical attributes the UFO may possess, then it must be clearly established beyond any doubt that the phenomenon is manifestly physical and can be accommodated within the conceptual framework that the sciences are accustomed to dealing with Scientific progress depends upon linkage to a physically measurable quantity One cannot expect otherwise

A common misconception which has become institutionalized and nearly hereditary is that science can deal with everything There are things that our current levels of science and technology cannot deal with This is fortuitous in some respects because it provides scientists with something to do, and it may well be that the UFO phenomenon falls within this category, but that does not imply nonexistence, nor does it provide circumstantial testimony by way of default to the often suggested extraterrestrial origin of the phenomenon It is difficult to comprehend that UFOs, if physical, do not interact with their surroundings in a way that is measurable Indeed, if it is physical it must interact in some fashion, and at least a thread of physical quantification apart from the mental transcripts of the witnesses must exist, howsoever slender The laws of nature have heretofore been largely enforced and either reconciliation or refutation must eventually come to pass

BACKGROUND

The idea that the UFO might be established as a physical entity with measurable properties by conducting an instrumented search goes back at least 20 years to Edward Ruppelt (1956, pp 199–208) when a group of scientists working on their own apparently found some interesting correlations between sudden increases in nuclear radiation levels and radar-visual sightings of UFOs French astrophysicist Jacques Vallee (1966) recommended to private UFO researchers that observation networks be formed Such networks were formed in Britain and France but did not yield fruitful results for reasons apparently not connected with the phenomenon (Lloyd, 1968, Vallee, 1967) Kocher (1968, p 32) in an internal Rand Corporation document recommended that “existing sensor records be examined for anomalies” In testimony before the U S House Committee on Science and Astronautics (1968, pp 20, 79), James McDonald made an essentially identical recommendation The need for instrumental data was again voiced in the Condon report by Ayer (1969)

Reports of physical effects of UFOs are varied (Craig, 1969), but quite often allude to electromagnetic disturbances as the cause for reported ignition and lighting system failures in automobiles Taking one such report seriously, Wood (1975) calculated a magnetic field of 10^6 gauss could have been responsible for an apparent polarization effect reported by an eyewitness In other accounts, time coincidences between UFO sightings and fluctuations in magnetometer traces have been reported Oswald (*UFO investigator*, 1973) conducted a 20-month survey in Exeter, New Hamp-

shire, utilizing several homemade magnetometers of "high" sensitivity. Out of more than 70 sightings, two were reported as recording a magnetic disturbance in time coincidence with a UFO sighting. In what is the most reliable and encouraging work to date, Poher (1975) showed a statistical correlation of 0.58 between UFO events and the vertical component of the geomagnetic field as recorded at Chambon-le-Forêt Geophysical Station in France. Unfortunately, with this one exception, reports of measured magnetic disturbances in time coincidence with UFO sightings are poorly documented.

PURPOSE

The purpose of this effort was to conduct an intensive search for corroborative associations or perturbations in routinely recorded geophysical data archived at the World Data Center (*Catalogue of data*, 1973) and maintained by the U.S. Department of Commerce's National Oceanic and Atmospheric Administration (NOAA).

More than 65 categories of geophysical data (including solar and interplanetary phenomena, ionospheric and geomagnetic phenomena, and cosmic-ray data) are routinely recorded at sites throughout the world. This data is collected and archived at several locations and made available to interested scientists through NOAA.

In the course of a collective effort of this magnitude, some justification exists if only on the basis of sheer probability, that the disturbances of a UFO, if any, could have been inadvertently recorded and stored in the archives of the World Data Center. Further, by the same reasoning, some association between the UFO phenomena and the geophysical environment may be discovered. Two essential assumptions form the basis of this search that such disturbances or associations exist, and that there is a reasonable probability of detection of those relationships.

A third variable appears in the problem and that is the reliability of UFO sightings in general. This topic is discussed in detail in the following section (Merritt, n.d.).

SELECTION OF EVENTS

The task of selection of sightings was independently undertaken by a committee under the supervision of the Center for UFO Studies utilizing the computerized files of UFOPCAT (Saunders, 1977).

One hundred high-reliability sightings were requested that met the following general criteria:

- a Entry based on a firsthand written report of an on-the-scene investigation, or the equivalent
- b Date of event to be 1957 or later
- c Year, month, date, hour, and minute data fields are complete
- d Absence of flags indicating uncertainty or known error in date and time fields
- e Geographic location of event is known

- f Event located within the 48 continental United States
- g Multiple witnesses involved
- h Type of report specifies a minimum strangeness level of 4 (object moved in a noncontinuous trajectory, with more than one discontinuity)
- i Absence of a "possible, probable, or definite" conventional explanation for the report based on the investigation

The following is a summary of the selection process

The first stage in this study was the preparation of a working list of "quality" UFO reports with precisely known times and locations. UFOCAT was queried to produce a list of 100 reports with certain criteria, including precise reporting times. The resulting list was reviewed and interesting reports checked against the original sources for completeness and accuracy; additional information found was added to the UFOCAT entries. The list was then rerun with a more stringent set of minimum report criteria. The original intent was to limit the working list to multiple-witness cases, but in the course of review it was found that some interesting reports with various kinds of instrumented substantiation had only a single human witness. Therefore the list was printed in two parts: Part 1—multiple-witness cases only, UFOCAT type 3 and above, and Part 2—single or unspecified number of witnesses to UFOCAT type 5 and above events. This process considered about 60,000 UFOCAT cases and selected 104 in Part 1 and 48 in Part 2. Lists and background information were distributed to members of a review committee.

The goal of the committee was not to find individual reports that would prove to be unidentifiable after unlimited investigation nor to produce a list of the "100 best reports," but to cull the printed lists to produce a very high "signal to noise ratio" report list with accurate time and location data. Each report was reviewed and discussed in turn. (In addition to intimate knowledge of the UFO literature, familiarity with UFOCAT coding conventions was a factor in selecting the committee.) Marginal cases were deleted from Part 1, and strong cases were added from Part 2. Although 100 reports were requested, the committee did not attempt to fill a quota. The final count for the working list was 73 reports, and the number of selected reports was allowed to seek its own level.

The following is a description of the working list

(a) Source of report

- 1 Investigative files 49 (67.1%), from five government or private groups plus three individuals
- 2 UFO journals 13 (17.8%), from three different titles
- 3 First-edition books 9 (12.3%), from three different titles
- 4 Committee and clipping files one report each (2.8%)

(b) Location by state

Preference was given to reports from investigators whose work was known to

members of the committee. This affected the geographical distribution somewhat. California, 17, Texas, 7, Pennsylvania, 5, Arizona, 4, Ohio, 4, North Carolina, 3, New Mexico, 3.

Nine additional states had two reports each, and 12 states had one report each. A total of 28 states were represented among the 73 reports.

(c) Year and month

Every year from 1957 to 1977 was represented except 1962, 1963, 1969, and 1970. The largest number for any one month was four reports from April 1975. Reports represent 52 different months well-scattered over the 20 5-year period.

(d) Time of day

Preference was given to daylight reports. In that respect the working list was atypical of the report population in general. The expected evening peak remained, however.

Local Time	Reports
0001-0200	9
0201-0400	6
0401-0600	4
0601-0800	1
0801-1000	4
1001-1200	5
1201-1400	2
1401-1600	3
1601-1800	6
1801-2000	8
2001-2200	17
2201-0000	8

(e) Report strangeness

Preference was given to high-strangeness reports. UFOCAT types 1 and 2 were not considered in computer selection.

UFOCAT Type	Reports	%	Description/Strangeness
3	7	9.6	Single discontinuity of motion
4	6	8.2	Multiple discontinuity of motion
5	46	63.0	Close encounter
6	9	12.3	Landing
7	4	5.5	Occupant
8	—	—	Contact
9	1	1.4	Abduction
	73	100.0	

(f) Report features

Preference was given to reports with interesting features

Features aiding in documentation

Instrumentation	6
Radar (including 5 radar-visual and 3 multiple radar)	8
Photos	4
Independent witness	15
Witness sketch	8

Effects

Physical traces	7
Electromagnetic effects	7
Animal effects	3
Psychological effects	2

Descriptive features

Disk shape	19
Noise or sound	5
Acrobatics	4
Chasing, pacing	4

(g) Number of witnesses

Single-witness cases were considered only if other factors were especially favorable

Witnesses	Reports
1	4
2	30
3	7
4	8
5	2
6	4
9	1
12	1
several	1
numerous	8
unspecified	2
total	73

A normal report distribution would be about 50% single-witness cases

(h) Duration of sighting

Minutes	Reports
< 0.5	4
0.5-1	2
1-5	14
5-10	7
10-15	4
15-20	7
20-60	3
> 60	8
total	49

The duration of the sighting was unknown for the remaining 24 cases. This distribution differed dramatically from the normal report population, which had about half the reports at one minute or less. Absence of very short duration has been shown to be a characteristic of lists of unidentified reports. The automated computer search was not programmed for selection on the basis of report duration, but this factor was considered by the screening committee. Of note was the concentration of very long-duration cases in the final list. It is possible that radar, photo, instrumented observations, and other preferred report features tend to be long-duration cases.

(i) Number of objects reported

Objects	Reports	%
1	59	80.7
2	4	5.5
3	6	8.2
4	1	1.4
6	1	1.4
14	1	1.4
54	1	1.4
	73	100.0

This distribution is believed to be roughly the same as the general report population.

In summary, each report individually survived a series of computerized selection tests and a final review by a committee of individuals experienced in the field. Some of the reports had interesting credentials, such as being Project Bluebook "unknowns." While it cannot be ascertained that a working list consists of "genuine UFOs," the profile of the list is highly consistent with other groups of truly puzzling reports. The variety of report types represented mirrors the multifaceted nature of the UFO problem, and the list was well-distributed in time and location. It can be reasonably asserted that the working list selected was appropriate to the methodology of the instrumented data search.

THE DATA SEARCH

This data search approached the problem from a phenomenological point of view rather than a statistical one. It was essentially a "first look" process that might serve to identify those phenomena, if any, that merit further investigation. Time-coincident events in a local rather than a worldwide sense were considered to be first-priority items of interest. In practice, this was not always possible, so the final results represented a compromise between the two, being largely a matter of data availability. In all, 17 different categories of data were examined, not all of which were available for each sighting. No a priori expectations were considered in the selection of data categories which, again, became a matter of availability. In spite of these limitations the final result represented a reasonable sampling of generic classes of phenomenon both on a local and worldwide basis.

The list of UFO reports was prepared independently of the data search by other investigators, the author having no input whatsoever in the selection of the sightings. Further, the author is, with the exception of one or two cases, unfamiliar with the details of these events. The concern was with the date, time, and location of the event, other details were temporarily deemed irrelevant.

THE DATA CATEGORIES

The following categories of recorded geophysical data were examined for possible time coincidences with the sighting list. A "time coincidence" is defined as a correlation between a UFO sighting and a fluctuation in the recorded data. The actual intervals for use in the declaration of a time coincidence range from several minutes to 24 hours, the latter necessitated by some data (sunspot numbers, for example) being reported only on a daily basis. To include this type of association, the time window of interest was widened accordingly.

Over the approximately 20 years of data availability, the reporting formats and types of data being collected progressively evolved. Stations ceased operations and others began. The quantity of data was immense and the formats and explanations in some cases complex. More detailed explanations and reporting procedures are available in the literature (King, 1971, Valley, 1965).

(a) Solar Flares

Flares are short-lived increases in the intensity of radiation emitted in the neighborhood of sunspots. They are characterized by a rise time of several minutes and decay time on the order of tens of minutes. Optical flares are generally accompanied by radio and x-ray bursts and occasionally by high-energy particle emission. Time coincidences with flares consider only the immediate component (10 min.) of electromagnetic radiation. Delayed effects were not considered.

(b) Solar Radio Events (Fixed Frequency)

These are defined as increases or bursts in solar radio emission occurring in conjunction with sunspots. Observations are made at a number of different frequencies in the electromagnetic spectrum.

(c) Solar Radio Events (Spectral Observations)

As above, except a wide range of frequencies is monitored simultaneously.

(d) Solar Flux

Flux densities in units of $10^{-22} \text{ w M}^{-2} \text{ Hz}^{-1}$ at 2800 MHz of the total radio emission from the solar disk are measured at local noon in Ottawa.

(e) Ionospheric Effects

A compilation of several phenomena, including short-wave fadeouts, enhancement of low-frequency atmospherics, and increases in cosmic absorption.

(f) Geomagnetic Activity Index

This data is referred to in terms of the K index, which is a measure of the disturbances in the Earth's magnetic field. The index is determined at three-hour intervals from the magnetic-field measurements at various stations after correction for lunar, solar, and solar-flare effects. The index is defined as the difference between the maximum and minimum values of the field component during that interval. As an example, if the excursions of the components in gammas are between

0–5	then K = 0
5–10	then K = 1
10–20	then K = 2
20–40	then K = 3
40–70	then K = 4
70–120	then K = 5

(g) Cosmic Ray Indices

This is a measure of neutron or meson components of the cosmic-ray flux incident at ground level. It is generally reported in bihourly intervals.

(h) Sunspot Numbers

Sunspots are optically dark (by contrast to the surrounding solar surface) photospheric regions of lower temperature and high magnetic field generally exhibiting an 11-year periodicity. Most spots appear in groups, and this is taken into account when defining the sunspot number index. These data are reported daily in terms of the American relative sunspot number and provisional Zurich sunspot numbers.

(i) Riometer Events

A riometer measures the absorptive properties of the ionosphere by monitoring changes in the incident cosmic noise at a single frequency, usually at 20, 30, or 60 Mhz. Events are defined as large changes in the absorption process.

(j) Principal Magnetic Storms

A geomagnetic storm is a worldwide transient variation in the geomagnetic field.

(k) Sudden Magnetic Impulses

Similar to the sudden commencement phase of a magnetic storm, but of smaller amplitude. They are not followed by main-phase storms.

(l) Sudden Commencements

The initial phase of a magnetic storm.

(m) Solar Flare Effects

Enhanced lower-ionospheric ionization from solar-flare x-rays resulting in variations in the geomagnetic field.

(n) Sudden Ionospheric Disturbances

These events are usually attributed to solar-flare electromagnetic radiation incident on the ionosphere. SIDs are observed on the sunlit hemisphere and occur almost simultaneously with visual-flare observations.

(o) Solar Protons

Significant numbers of charged particles are accelerated at the sun during many solar flares. Some of these particles are subsequently detected within the interplanetary medium and at the earth. The few data points reported herein are from satellite observations.

(p) F-plots

Many of the characteristics scaled from bottomside swept-frequency ionograms are presented in graphical form called f-plots. Of particular interest is fbEs, the blanketing frequency of the E layer often associated with a layer of anomalous ionization referred to as sporadic E. The time window for declaration of a time coincidence is approximately ± 2 hours.

(q) Normal Magnetograms

A continuous record of the magnitude of several components of the geomagnetic field.

DATA

Data tables used for this study can be requested from the CUFOS office

SPECIFIC CONCLUSIONS

(a) Solar Flares

Of the 63 cases examined, 3 were adjudged to be in time coincidence with the immediate component (electromagnetic) of the flare radiation reaching earth Associated with larger flares are proton showers which are delayed from 0.5 to 16 hours from the visual flare and are responsible for disturbances in the geomagnetic field The delayed component was not considered in the search From the very low frequency of occurrence it is concluded that there is no association between the immediate electromagnetic component of solar flares and UFO reports

(b) Solar Radio Events (Fixed Frequency)

Of the 63 cases examined, 8 were adjudged to be in time coincidence with solar radio events Of these, at least 3 can be attributed to solar flares These observations are taken at a number of different frequencies with highly sensitive directional radio receivers In spite of the directionality, response on the side lobes of the antenna could be sufficient to detect an intense source However, the very low frequency of occurrence and geographical considerations suggest coincidence rather than association Nevertheless, if the UFO electromagnetic-emission hypothesis were pursued, then it would be possible to estimate some upper limits on such emission if the antenna side lobe response were known

(c) Solar Radio Events (Spectral Data)

Of the 28 cases examined, 5 were adjudged to be in time coincidence with these measurements Of these, at least 3 were associated with solar flares With discussion similar to the previous section, it is concluded that the remaining events are probably coincidental and no association exists

(d) Solar Flux

Of the 73 cases examined, 3 were adjudged to be in time coincidence with a rise in time-integrated daily solar flux measurement at 2800 MHz taken at Ottawa These are again relegated to coincidence

(e) Short Wave Fadeouts

Of the 14 cases examined, only one was adjudged to be in time coincidence with this category of phenomenon It is concluded that no association exists

(f) Ionospheric Events

Of the 12 cases examined, one was adjudged to be in coincidence with this cat-

egory It is concluded that no association exists

(g) *Geomagnetic Activity Index*

Of the 55 cases examined, 12 were adjudged to be in time coincidence with a rise in the K index Since this index is a worldwide average over 3-hour periods, it is difficult to assert a phenomenological association However, the relatively high frequency of occurrence renders it equally difficult to ascribe this category to random coincidence Until further investigations are carried out, this category is adjudged to be indeterminate

(h) *Cosmic Ray Indices*

Of the 50 cases examined, 6 were adjudged to be in time coincidence with fluctuations in the cosmic ray index At least 2 of these were associated with sudden decreases in the index A fairly low frequency of occurrence suggests no association exists

(i) *Sunspot Numbers*

Out of 73 cases examined, 7 were adjudged to be in time coincidence with increases in the sunspot numbers The frequency of occurrence is again too low to suggest any association

(j) *Riometer Events*

Of the 5 cases examined, 4 were adjudged to be in time coincidence, yielding a relatively high frequency of occurrence However, the small number of cases examined renders this category indeterminate

(k) *Principal Magnetic Storms*

Of the 16 cases examined, 5 were adjudged to be in time coincidence with principal magnetic storms This represents a relatively high frequency of occurrence Nevertheless, this category is adjudged to represent a possible association

(l) *Sudden Magnetic Impulses*

Insufficient data

(m) *Solar Flare Effects*

Insufficient data

(n) *Sudden Ionospheric Disturbances*

Of the 43 cases examined, 3 were adjudged to be in time coincidence with this phenomenon The low frequency of occurrence suggests that no association exists

(o) *Sudden Commencements*

Insufficient data

(p) Solar Protons

Insufficient data

(q) F-plots

Of the 42 cases examined, 26 were adjudged to be in time coincidence with a relatively large fluctuation in fbEs, the blanketing frequency of the sporadic E layer. The sporadic E layer is a relatively thin layer of anomalous ionization that manifests itself within the normal E layer from time to time. The frequency of occurrence of this phenomenon at any given geographical location is about 1% or less, averaged on a yearly basis. There is no known relationship between sporadic E and any solar phenomenon. However, it seems to exhibit a slight preference for the summer months and a decrease during the course of the night. It also seems to be a fairly localized event with distinct horizontal boundaries, and very little geographical correlation between events at distances beyond 400 km.

It appears that several different physical phenomena are lumped together under the general heading of sporadic E. Currently held theories allude to the equatorial electrojet as being responsible for the phenomena in the equatorial zones with wind shear and charged-particle bombardment being the causative agent in temperate and auroral zones respectively. Meteoritic dust has also been cited (Valley, 1965, pp. 12-37; Rawer, 1952, pp. 126-34; Davies, 1965, pp. 150-53). The relatively high frequency of occurrence suggests a possible association.

(r) Normal Magnetograms

Of the 26 cases examined, 8 were adjudged to be in time coincidence with fluctuations in one or more components of the geomagnetic field. This relatively high frequency of occurrence is moderated by two considerations. Firstly, the fluctuations are subtle, and secondly, a high probability of other causative agents is present. Nevertheless, this category is adjudged to represent a possible association.

GENERAL CONCLUSIONS

The data presented herein have served two principal purposes relative to the primary objective of attempting to find some clue as to causal relationships in the UFO phenomenon. The first was an examination of the hypothesis that UFOs may cause some perturbations in recorded instrumental data. A fortuitous by-product of the study allows the examination of an alternative hypothesis—namely that UFOs are in some way related to environmental changes as measured by the instrumental data.

Neither of these approaches are all-encompassing in the sense that only limited amounts of data and phenomena can be examined. The conclusions therefore must be presented in the same context. Time coincidences do not demand causality but merely indicate a cause-and-effect relationship may exist.

In the attempt to draw conclusions, the principal assumptions are restated that UFOs are physical entities and interact with or are the by-product of environmental

effects, and that in some way, these relationships may be discovered, provided the right effects are both being measured and scrutinized.

Additional assumptions about the reports per se were also required. As stated earlier, considerable effort was expended in the compilation of a list of "quality" reports. It is assumed that all such events are members of a representative sample of the most credible events documented and all constitute valid data points with which to seek cause-and-effect relationships.

A possible source of error is the conversion in some instances of local time to universal time. The uncertainty arises from the local time zone in which the event was reported. A further possible source of error lies within the realm of subjective judgment on the part of the investigator as to what constitutes a time coincidence. Since no absolute judgments are presented and since a fairly large number of cases were examined, it can be reasonably asserted that an occasional error of this sort would not appreciably influence the outcome.

There are six categories of phenomenological occurrences that seem to merit further attention:

- 1 Geomagnetic activity index (indeterminate)
- 2 Principal magnetic storms (possible)
- 3 Solar protons (insufficient data)
- 4 F-plots (possible)
- 5 Normal magnetograms (possible)

Summary by Data Category

Data category	Cases examined	Time coincidence	Frequency of occurrence	Overall conclusion
Solar flares	63	3	05	No association
Solar radio events (fixed frequency)	63	8	13	No association
Solar radio events (spectral)	28	5	18	No association
Solar flux	73	3	04	No association
Short wave fadeouts	14	1	07	No association
Ionospheric events	12	1	08	No association
Geomagnetic activity index	55	12	22	Indeterminate
Cosmic ray index	50	6	12	No association
Sunspot numbers	73	7	10	No association
Riometer events	5	4	80	Indeterminate
Principal magnetic storm	16	5	30	Possible
Sudden magnetic impulses	3	—	—	Insufficient data
Solar flare effects	3	—	—	Insufficient data
Sudden ionospheric disturbances	43	3	07	No association
Sudden commencements	1	1	1 00	Insufficient data
Solar protons	2	2	1 00	Insufficient data
F-plots	42	26	62	Possible
Normal magnetogram	26	8	31	Possible

The first hypothesis to be examined concerns sheer coincidence. This explanation is possible due to the limited scope of the investigation. However, this does not appear likely if the results can be taken at face value. Clearly, much more work is needed and cases should be examined extensively on an individual basis to resolve this question. It is the author's considered opinion that the frequency of occurrence of one or more of these associations are unusually high, perhaps too high to ascribe them to random coincidence, especially in consideration of past results, albeit poorly documented. There exists sufficient evidence to at least seek and examine an alternative hypothesis.

Individually, the above conclusions do not offer nearly as much potential for suggesting possible association as when they are considered collectively. It is noted that all of these categories, with the possible exception of f-plots, can be associated with charged-particle showers incident on the ionosphere and magnetosphere. The geomagnetic activity index, principal magnetic storms, and normal magnetograms are all measurements of the earth's magnetic field, and perturbations are largely the result of charged-particle influx from the interplanetary medium. The riometer events and solar-proton measurements are additional and independent indications of the charged-particle influence. Taken together, the tentative hypothesis of charged-particle association is reinforced.

F-plots are indications of ionospheric perturbations manifested in large fluctuations in fbEs, the blanketing frequency of the sporadic E layer (a thin region of anomalous ionization existing at times in the normal E layer). There are as yet some questions on the formative mechanisms for sporadic E in temperate regions, so that whether or not this specific result is an exception to the above trend is an open question.

There arise a number of specific questions or objections to the above apparent trends with regard to the manifold complexities of the UFO phenomenon. Of these the most prominent is one concerning consistency. If the representative sample of quality UFO reports all represent valid data points, then it is pertinent to ask why the associations are not consistently observed. For example, a UFO was reported over a city in which a magnetograph was recording data and yet no perturbations were noted. There are other examples of these glaring inconsistencies. It is possible that UFOs are multifaceted phenomena exhibiting different characteristics at different times. Clearly, this conjecture amplifies the existing complexities many times.

It is also possible that the list of UFO reports used in this search contains a mixture of truly inexplicable events, misidentifications, and contrivance.

All of these objections are valid possibilities and a considerable amount of effort will be required to glean some definitive answers.

In spite of these objections, there seems to be sufficient justification for further efforts of this kind.

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Some of the publications cited in the references are not generally considered to be reputable scientific journals However, it has been the author's experience that each work should be examined individually More importantly, there are very few places that even the most scholarly and legitimate work on UFOs can be published

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PROJECT SIGN AND THE ESTIMATE OF THE SITUATION

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ABSTRACT Upon becoming aware of the explosion of reports of anomalous aerial phenomena over the United States in the summer of 1947, the U.S. Air Force became alarmed and instituted emergency studies of the "flying disks." Quickly this task was delegated to Wright-Patterson Air Force Base's intelligence division, and in January 1948 became a formal project, Sign. Sign investigated the phenomenon for seven months and decided that it was best explained by the extraterrestrial (spacecraft) hypothesis (ETH). An Estimate was produced for the Pentagon giving reasons for this. Elements of very high rank in the Pentagon would not accept this, and their refusal led to a major debate on the ETH which resulted in the ultimate breakup of the Project Sign team and the destruction of all (with perhaps one exception) copies of the document. This early confrontation set the tone for USAF behavior toward UFOs for the next two years and, after a brief respite in the era of Capt. Edward Ruppelt until the complete cessation of the formal USAF project on the phenomenon in 1969.

INTRODUCTION

Project Sign was the first official, formal investigative body concerned with the mystery of unidentified flying objects. It was a United States Air Force (USAF) intelligence activity located at Wright-Patterson Air Force Base in Dayton, Ohio. Its bureaucratic location was in Air Materiel Command's (AMC) Intelligence Division, referred to on the base as T-2. It operated formally for about one year, the calendar year of 1948.

During that year Project Sign collected reports on a large number of cases, conducted some on-site investigations and many interviews, and attempted to analyze the UFO phenomenon in any way available. By the fall of 1948 the lead personnel of Sign decided that their investigations pointed to a conclusion. As was usually done for any intelligence analysis, they then composed what the military called an "Estimate of the Situation" which they sent to their superiors in the Pentagon. Their conclusion: The flying-disk phenomenon was caused by extraterrestrial agencies.

This created a great stir in the Pentagon. Authorities there were unwilling to accept it. The fallout of this consternation resulted in a quashing of the document, and a denial to the public that it had ever existed. This paper will attempt to detail the origins, nature, and functioning of Project Sign, as well as the reasons for the creation, quashing, and denial of the now-famous Estimate.

THE SUMMER OF 1947

The June 24, 1947, sighting of nine disks near Mt Rainier, Washington, by Idaho businessman Kenneth Arnold started a flurry of reports that began the modern era of UFO sightings. At first, the military did not take these reports too seriously, but they changed their minds considerably in about one week's time. This change of attitude was due to the continued stream of disk reports, many by their own pilots and personnel. In fact, the first week of July 1947 had created considerable excitement within the offices of the Pentagon, with the Air Force Directorate of Intelligence scrambling to make sense of these mysterious overflights and enlisting the aid of their bases, other services, and the FBI (Fitch, 1947).

Gen George McDonald was director of intelligence for Chief of Staff Gen Carl Spaatz. But he and Spaatz seemingly played no role in this story. The real energy at the top of the Air Force's command seems to have been Spaatz's junior executive and incoming replacement, Gen Hoyt Vandenberg. McDonald, too, seemed to be slipping toward retirement as well as his World War II mentor and friend, and much of the action at the Directorate was handled by his executive officer, Brig Gen George Schulgen. McDonald and Schulgen presided over the Directorate when it was adjusting to postwar changes and the newness of the Air Force itself (soon to achieve formal independence from the Army).

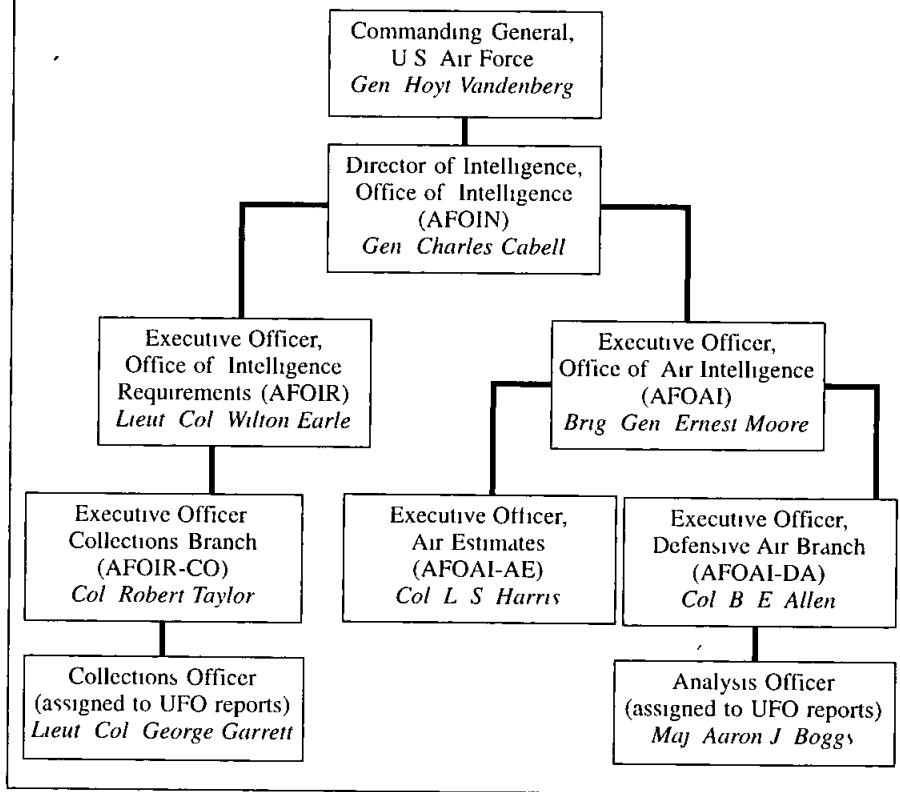
The Directorate had several divisions of which two played major roles regarding UFOs.¹ The primary offices at the Pentagon involved those of the Directorate of Intelligence (AFOIN) and certain locations in the two other divisions, the Air Force Office of Intelligence Requirements (AFOIR) and the Air Force Office of Air Intelligence (AFOAI).

The former had more of a service function, and included the important Collections branch (AFOIR-CO). In this office we find the executive officer, Col Robert Taylor, and his right-hand man and chief collector of UFO information, Lt Col George D Garrett. Acting Chief Garrett would stay in this position at least to the end of 1949. He would be a veteran source of continuity through this early UFO era, and a person in sympathy with the idea that the flying disks were real, technological objects. AFOIR seems to have been a source of individuals sympathetic to taking UFOs seriously, as it included not only Garrett and Taylor, but Col Frank Dunn in the main office (who would become Captain Ruppelt's open-minded superior at Wright-Patterson) and Col (then Major) W A Adams of the Documents and Dis-

¹ All offices had letter designators, the "alphabet soup" of military focal points and these were in the process of changing. I'll give the designators that applied through most of this early UFO period as examples of the relevant organizational structure. In the summer and fall of 1947, USAF used a set of designators beginning with 'AFB' for the Pentagon and 'TSD' for the T-2 intelligence office at Wright-Patterson. These designators all changed in about December 1947, were tweaked again by early 1950, and totally changed again by the time Project Blue Book Director Capt Edward Ruppelt took over in late 1951. I give the structural designators for the late 1947-1950 period below. The *real* organizational format seems to have remained essentially the same.

Organizational Chart, USAF Intelligence, ca. 1948

The Pentagon's Directorate of Intelligence was undergoing a reorganization in 1947–1952. Much change also occurred in the executive positions of AFOIN, AFOAI, and its branches. The chart below is representative of the type of structure and staff as it was in the 1948 Project Sign period.

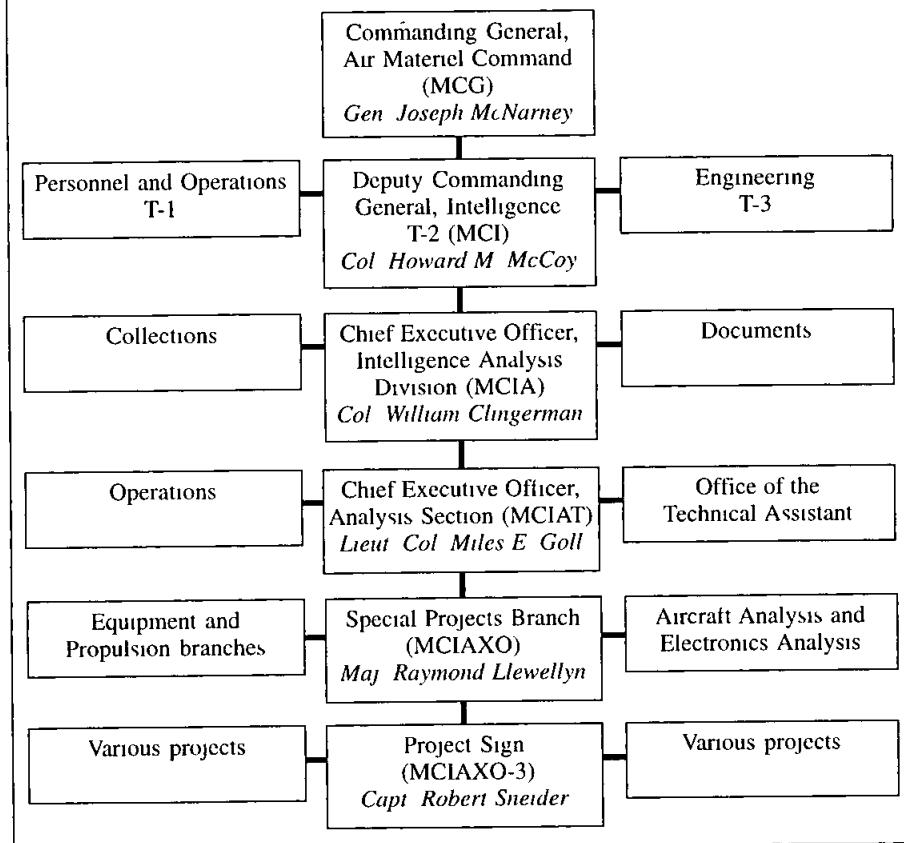


semination office (who as Maj Dewey Fournet's boss in the Pentagon would become a strong proponent of the extraterrestrial hypothesis in 1952 (Fournet was the Pentagon's chief UFO officer in 1952)

On the other side at the Pentagon was Air Intelligence. This was more an analysis division. From its Defensive Air branch (AFOAI-DA) and certain elements in the main office and Air Estimates (AFOAI-AE) came consistently negative views about the flying disks, particularly about the extraterrestrial hypothesis but to some degree even to their existence at all. AFOAI-DA seems to have been in part almost a spin-doctoring office, fixated on manipulating analyses and conclusions to have the proper effect and appropriate action. This was the realm of the saucer-killing Maj Aaron J (Jerry) Boggs and Col E H Porter, a very supportive superior who became director of estimates. Boggs stayed in this position a long time and Porter was still there in

Organizational Chart, USAF Air Materiel Command, ca. 1948

Like the USAF Directorate of Intelligence, the Intelligence Division at AMC went through major restructuring in 1947–1952. The partial organizational chart below is generally accurate for 1948, the year that Project Sign formally existed.



1952 The Pentagon was a split house on UFOs from the beginning

At Wright-Patterson AFB, the Commanding General of AMC Nathan Twining presided over the USAF's technical research and development operation (called T-3, or AMC-Engineering), as well as the technical intelligence group MCIA, or T-2. These two functions were in separate parts of the base. T-3 engineering was on Wright Field, and T-2 intelligence was tucked away in an outer area of Patterson. T-2 could call upon T-3 labs and experts for help with analysis of reports.

The director of intelligence at AMC was Col Howard M McCoy. An excellent engineer (known as “Mr Propeller” in his prewar days in the engineering division), McCoy was also an experienced intelligence man, having done fieldwork in Europe to bring back the remains of German aviation technology and some of their techni-

cal libraries McCoy's intelligence division was set up to analyze reports of a potential or real enemy's air power. The main part of the operation was the intelligence-analysis division (MCIA Material Command Intelligence Analysis). This group's executive officer was Col. William Clingerman, a fine engineer and intelligence officer who personally investigated what was perhaps the first instance where Wright-Patterson was ordered by the Pentagon to send personnel to the site of a UFO case, at Harmon Field, Newfoundland.

MCIA was broken into two sections MCIAT (the technical analysis section) and MCIAO (the operations section). Under MCIAT were several branches (e.g., aircraft analysis, foreign liaison, guided missiles, special analysis, and special projects). The latter branch was a catchall office where ad hoc projects could arise. It would become the location of the flying-disk team, Project Sign. These offices were fairly fluid with regard to the actual work of their staff. Many officers signed off on documents as "acting chief" of MCIAT and for Clingerman as MCIA. Albert Deyarmond, a friend and war colleague of McCoy, worked out of Clingerman's office, was assigned to Project Sign, and could be seen writing letters and signing off for officers all up and down the T-2 structure.

But in the summer of 1947 the formal operation called Project Sign was not yet in existence. Reports of flying disks were coming from everywhere, but the investigation of these reports was disorganized. The Pentagon, through Schulgen, responded first as the natural focal point. AFOIR-CO was given the initial responsibility in the person of Lt. Colonel Garrett. He, Taylor, and Schulgen began to try to get their bases to investigate notable cases and forward the reports. They also enlisted the FBI, who assigned Special Agent S. W. Reynolds as the liaison. They began working furiously on this throughout July, involving Wright-Patterson now and then by direct communication with McCoy.

As July wore on into August, Garrett, Schulgen, and Reynolds became confused by a lack of interest and pressure emanating from the high echelons of the Pentagon. The previous year they had gone through an investigative furor about a subject that they considered to be similar to the flying discs, when hundreds of "ghost rocket" reports came out of Sweden and other European countries. In 1946, the top brass had exerted continuous pressure to find an answer, but now it had gone completely quiet. This puzzling void has been termed "the silence from topside." It was very peculiar to Garrett and the FBI. Their mutual suspicion was that the very highest officials knew what this phenomenon was already (Swords, 1991).

THE RESPONSE TO THE SILENCE

Agent Reynolds felt that it was a waste of personnel and resources to engage in a nationwide goose chase to find out what the Pentagon high brass already knew. Garrett agreed. It was no more useful for the USAF to waste its time. Garrett and Schulgen decided to place the issue squarely before the people who should know. They were certain that the response would be "Yes, fellows, we believe that we do

understand precisely what these disk reports are all about, and you really don't need to pursue it any longer" Instead, the chain of communications would ultimately lead to the establishment of Project Sign

Garrett decided to broach this question of the wild goose chase in concert with a preliminary intelligence Estimate on the nature of the disks that he would write. During late July 1947, Garrett had collected and sifted his flying-disk case reports and selected 16 (two more were added later) from which to make his Estimate. We can visualize him sitting at his desk in the Pentagon, the case reports spread out before him ordered by date, marking each front page with a large circled number, and beginning to extract the pattern that he saw. What Garrett concluded in this first informal USAF Estimate was as follows (see Appendix I for the full text)

From detailed study of reports selected for their impression of veracity and reliability, several conclusions have been formed

- (a) This "flying saucer" situation is not all imaginary or seeing too much in some natural phenomenon. Something is really flying around.
- (b) Lack of topside inquiries, when compared to the prompt and demanding inquiries that have originated topside upon former events, give more than ordinary weight to the possibility that this is a domestic project, about which the President, etc. know.
- (c) Whatever the objects are, this much can be said of their physical appearance
 - 1 The surface of these objects is metallic, indicating a metallic skin, at least.
 - 2 When a trail is observed, it is lightly colored, a Blue-Brown haze, that is similar to a rocket engine's exhaust. Contrary to a rocket of the solid type, one observation indicates that the fuel may be throttled which would indicate a liquid rocket engine.
 - 3 As to shape, all observations state that the object is circular or at least elliptical, flat on the bottom and slightly domed on the top. The size estimates place it somewhere near the size of a C-54 or a Constellation.
 - 4 Some reports describe two tabs, located at the rear and symmetrical about the axis of flight motion.
 - 5 Flights have been reported, from three to nine of them, flying good formation on each other, with speeds always above 300 knots.
 - 6 The discs oscillate laterally while flying along, which could be snaking [Garrett, 1947]

Garrett's 16-case (later 18-case) study was reported to the FBI and to his superiors in Schulgen's office. They then began using the study to query the research and

development areas of the armed services Are these devices our own technology? Are we flying them? Everyone, including USAF Chief of Research and Development Gen Curtis LeMay, said no Schulgen passed on LeMay's assessment His exact words were

A complete survey of research activities discloses that the Army Air Forces has no project with the characteristics similar to those which have been associated with the Flying Discs [Schulgen, 1947a]

The FBI had contacted their sources in the Army and had received the same reply We don't have similar documentation for the Navy, but the man who was to become the leading civilian UFO researcher of the 1950s and 1960s, retired Marine Major Donald E Keyhoe, made his own inquiry of his personal friend, Adm Calvin Bolster (naval chief of aeronautical research), and was also told that no such naval project existed (Keyhoe, 1950, p 44)

This seemed peculiar—advanced technology flying in U S air space that none of the services was responsible for, and yet the very high brass not particularly nervous Maybe there was something so new going on at Wright-Patterson that even LeMay hadn't yet been briefed So, as a last resort, General Twining got the Garrett Estimate and the normal inquiry, probably in late August

Twining passed the inquiry on to McCoy, Maj Gen Alden Crawford (chief of T-3), Gen F O Carroll (director of research and development), Col C K Moore (aircraft laboratory chief), Col Russell Minty (power-plant laboratory chief), and Brig Gen Edgar Sorenson (Air Institute of Technology commander) They each studied Garrett's report, and held a conference on the disks sometime in mid-September Twining reported the results to Schulgen (and thereby to Garrett and the FBI) on September 23, 1947 (Twining, 1947)

We don't have the polished Garrett report to compare with the Twining letter, but it appears that Twining's experts essentially agreed with Garrett's analysis They added the observations that sound is rarely heard coming from the disks, and that their performance characteristics indicate that they are controlled objects T-3 was of the opinion that something like this could be built with long-range but slow-speed capabilities, but it would be very expensive AMC admitted ignorance of the nature of the disks, confirmed that they would continue to monitor reports, and suggested that an official project be formed to get to the bottom of the phenomenon This was the last of the "we don't know" admissions The Pentagon agreed that a formal project should be initiated

WRIGHT-PATTERSON AND THE GERMAN/SOVIET THEORY

When the Pentagon first involved AMC intelligence in the flying-disk problem (probably about mid-July), T-2 chief McCoy began thinking about the possibility of German aeronautical technology This is shown in the following sequence of events documented in the USAF's Project Blue Book files

1 On July 10, civilian workers at the air base at Harmon Field, Newfoundland, watched a disk-shaped object cut its way through the cloud cover and leave behind a powerful-looking "exhaust trail." Pictures were taken.

2 On July 16, a formal initial report was made by a base intelligence officer. This was followed by a more detailed report on July 21 that was sent to the Pentagon. (Note that Wright-Patterson was not yet considered any sort of focal point for disk reports.)

3 The Pentagon assessed the report and then got excited about it. Schulgen ordered McCoy (about July 28-29) to send a top-level assessment team to Harmon Field "immediately," and for them to go directly to him at the Pentagon afterwards.

4 McCoy's notes, possibly from a Pentagon phone call, indicate that his team had been asked earlier to do some assessment of these disk reports. He wrote, "What has Clingerman [his head of analysis at T-2] prepared?" and "What has Brentnall [chief of T-3 engineering] prepared?"

5 McCoy's notes also indicate his concern with German technology. "Interview Hugo Eckener Goodyear What L/A [lighter-than-air capability] does Russia have? German-Russian Type What plans & potentialities?"

Nothing would be more natural than for McCoy to be concerned with German technology. His main job in 1945 had been retrieving it from German sites, and he had also helped bring back a huge German air technical library to Wright Field. Although it is said that he had nothing to do with Operation Paperclip (the placement of Nazi scientists in hi-tech U.S. labs), he obviously knew where these people were. And right in his own organization's library was the secret T-2 manual on the so-called Horten flying wings, the most radical of which had a distinct resemblance to the disks (USAF AMC, 1946).

Also working for McCoy in the T-2 analysis division was Alfred C. Loedding, a design engineer on loan from the T-3 engineering division. Loedding had long been interested in low-aspect and disk-shaped airplane designs, and had produced a couple himself (Loedding, 1948). He was intrigued with the disk reports, and was sure that such designs could be made to fly. He soon became McCoy and Clingerman's liaison to the Pentagon on these matters. By late August, McCoy seems to have already gotten the hint that flying-disk investigations would be shifted to Wright-Patterson from the Pentagon and he asked for a meeting between Loedding, Garrett, and Dr. Charles Carroll (McCoy, 1947a). Carroll, a mathematics and missiles expert, had been making some kind of analysis of flying-disk activities. (One wonders, admittedly a bit idly, whether this was the beginning of the analysis mentioned by Project Sign a year later, correlating disks with near approaches of planetary bodies.) As Loedding became a strong supporter of the extraterrestrial hypothesis (ETH) for the disks, and Garrett already was a strong proponent of their reality and extreme unusualness, they could have formed the core of the ETH-friendly faction.

The meeting took place in the Pentagon on September 5, and Pentagon disk files were transferred to Wright-Patterson shortly thereafter. Therefore, even before Twinning wrote his famous September 23 letter evaluating the disk problem and suggest-

ing a formal intelligence project at the Dayton base, the matter had been decided

The Twining letter ("AMC Opinion Concerning Flying Discs") was written by McCoy from his own and T-2's perspective. Not knowing what he was dealing with, he offered two hypotheses: a very high security project that even he, Brentnall, or LeMay didn't know about, or a project, maybe even nuclear, developed by "some foreign nation." He was thinking mainly of German scientists working for the Soviets. He wanted all the top scientific guns in on this: the Atomic Energy Commission, NACA (NASA's predecessor), the Rand think tank, the Nuclear Engine Propulsion Aircraft project, and others. He promised a detailed "Essential Elements of Information" (EEI) intelligence requirements to be formulated immediately, so that all agencies would have guidance on what to look for (Twining, 1947).

Exactly when this EEI was written is unknown, but in about a month it was distributed within the European Command by Lt Col Malcolm Seashore, former acting chief of MCIAT under McCoy and Clingerman (Schulgen, 1947b). The EEI covered all the expected bases of an intelligence operation concerned about the use of ex-Nazi technology and engineers by Soviet projects. It was especially concerned with the same things that had been worrying McCoy and Loedding in August: the German engineers Walter and Reimar Horten and their disk-like flying technologies. Its description of the disks in flight were, of course, the same as those in the Twining letter, which were mainly those originally determined by Garrett at the Pentagon. A few descriptors were added, which must have made the idea of a German-Soviet craft seem very unlikely: the ability to almost hover, quickly disappear, group together very quickly, and "suddenly appear without warning as if from an extremely high altitude." All these new elements appeared in a December Pentagon estimation, rewritten from a similar Pentagon document of October 6. This indicates that radar detection of disks over Fukuoka, Japan, played a role in further concerning the Air Force about great maneuverability (McDonald, 1947).²

² As an important sidebar to this discussion, a very nefarious misuse of the October 6 EEI by McCoy has been uncovered (Todd, 1997). An unknown individual, apparently while investigating declassified Pentagon documents about the Horten brothers, seems to have taken this original EEI and constructed a fake version of it. The fake is dated the same as the October EEI, called a "draft" instead of the completed official document distributed by Seashore and attributed to Schulgen instead of to McCoy and Wright Field. The contents are largely left intact, undoubtedly on the theory that a good lie is always shrouded in the truth, but several deletions and additions occur. This manufactured fake was then somehow slipped back into the files to be discovered later by trusting ufologists who don't have such dishonest minds. When FOIA requests later included the fake alongside original accurate material, researchers naturally (including myself) were misled by the inclusions. This somewhat sick behavior points out yet another difficulty confronting scholars trying to piece together genuine historical accounts of what took place behind the mirror of secrecy in the military. The unfortunate part of this is that the faked edition alleged that the USAF was having doubts in the fall of 1947 about the German-Soviet hypothesis and that some personnel were seriously considering the ETH. The tragedy of this hoax, I believe, is that it helps scuttle what was in fact the true situation. The genuine October 6 memo (rewritten in December 1947, and also genuine) indicates that by December the USAF was in serious doubt about the German hypothesis, yet strongly believed in a real "puzzling problem." They reasserted that the objects were not ours and didn't seem to be "theirs" either. Given what Loedding and

Since September the intelligence department at Wright-Patterson had taken the lead responsibility for flying-disk analysis without having an official project or the material support that a special task would bring. Now the time had come to quit handling this as an add-on job, and become truly organized. The ball began rolling in early December, when LeMay made a request for information on the status of flying-disk analysis. Pentagon Colonel J. F. Olive (chief of AFOAI) and Lt Col J. E. Thomas of the Offensive Air section (AFOAI-OA) got the job. By December 18, Olive and Thomas had completed their reanalysis of the earlier documents from the Pentagon and Wright-Patterson, rewritten a new Estimate indicating a potentially serious but puzzling phenomenon, and turned this over to Chief of Air Force Intelligence McDonald for his signature. Also signing off on this document were Garrett's chief at AFOIR-CO and the new chief of AFOIR, Gen Charles Cabell, who was being groomed to succeed McDonald. Around Christmas, the official letter was actually passed to LeMay recommending that Wright-Patterson should get an official flying-disk project, and that LeMay should formally notify the commanding general there. As it turned out, LeMay had just been replaced by Gen Laurence C. Craigie, who sent the formal word to Wright-Patterson to establish Project Sign on December 30, 1947 (Craigie, 1947).

PROJECT SIGN AND ITS WORK

Sign was immediately organized as a special project under the Technical Analysis section of T-2. The name seems to have caught on a lot quicker than the alphabet-soup technical designation, but whether it was Sign or MCIA XO-3, the cases began to appear in Dayton to be analyzed. They landed on the desks of the following people:

- 1 Capt Robert R. Sneider, the project chief
- 2 Loedding, the T-3 veteran engineer
- 3 Lawrence Truettnner, a civilian engineer working on missile analysis at T-2 in the same corridor
- 4 Deyarmond, the civilian intelligence analyst in Clingerman's office who had been a WW II field buddy of McCoy in Germany

These four people would be considered the core group of the project. Helping this core were:

- 5 Maj Raymond Llewellyn, the chief of the special projects branch of MCIA T
- 6 Lt Howard W. Smith
- 7 George W. Towles, a civilian
- 8 Occasional others (e.g., Chief of Special Analysis Nicholas Post and John (Red) Honaker of McCoy's office) when needed. The project had the authority to ask any lab on the base for help, occasional field support (pilots or equipment), and contacts.

Sign believed (the ETH) about one-half year later is it not likely that the faked phrase of the hoax document ("it is the considered opinion of some elements that the object may in fact represent an interplanetary craft of some kind") is an accurate assessment? Sadly, due to the malfeasance of some scoundrel, it makes this case more difficult to defend.

with outside experts We do not know how much direct interest McCoy took in the work

Although the project did not officially begin until later in January, Sign did not have long to wait for its first big case It took place on January 7, 1948, and possibly produced more consternation and the longest after-effect of any other the crash and death of national-guard pilot Capt Thomas Mantell The consensus of the UFO community today is that Mantell died while pushing his plane and himself too hard in a chase of a then-secret balloon called a Skyhook Though this is almost certainly true, it wasn't at all obvious in 1948 From the viewpoint of 1948 and Project Sign, here are what the relevant facts seemed to be

1 Ground personnel from a variety of locations were seeing a disk-like object in the sky

2 Four national-guard planes were directed to it, three closed, and Mantell was in hot pursuit

3 Mantell believed that the target was moving as fast as his plane

4 It seemed to shine as if made of a reflecting substance like glass or metal

5 Mantell was quoted, “[it] looks metallic and of tremendous size”

6 After the crash and investigation, the USAF (not Project Sign) said that Mantell had been chasing the planet Venus No one involved with the investigation at Sign believed that, and in November 1948 they were still puzzling over this Deyarmond wrote that this clearly was *not* Venus, and the case was unexplained

It is easy to see how the Mantell case would get the project off to an excited but erroneous start This incident highlights two important characteristics of the era reason to believe that the UFO phenomenon was extremely interesting (and unexplained), and reason to disbelieve things said publicly by the Pentagon about UFO explanations One wonders whether the project team felt that the Mantell object could have been the result of a Soviet-German secret project The thought of a huge metallic disk leaving a fighter plane behind at high altitude was indeed an unsettling vision

During the early months of the project another puzzling element added itself to the mystery The UFOs appeared to be a truly worldwide phenomenon Although there had been non-U S cases previously (and there had been a major wave of aerial anomalies in Europe, especially Scandinavia) in 1946, these were few in number and conveniently placed geographically so that the Soviet-German theory could be rationalized Now reports seemed to be trickling in from everywhere Cases in Finland, Denmark, Germany could be rationalized, but what about the Philippines, Paraguay, and the mid-Pacific? Of course, any report that didn't fit in could be wrong

A second case that interested Sign occurred on February 18, 1948 Like Mantell's Skyhook balloon, this was not a UFO, but it is worth describing for other reasons The case was of a spectacular exploding bolide over Norcatur, Kansas

Concussion from the blast broke windows, rocked buildings and terrified residents over a wide section of Kansas, Nebraska, and Oklahoma

The smoke trail started over Nebraska to the north and ran southward, twisting over upon itself in "jelly-rolls" like the vapor trail of a plane out of control

Many people believed that a jet airplane had exploded instead of a meteor. Scientists, army officers and other officials said that was impossible because of the extreme altitude of the explosion. Some people blamed the explosion on "flying saucers."

Two Army B-29 bombers circled over the area until nightfall, but the army did not issue a statement [United Press, 1948]

One could see how a USAF intelligence project that did not view "extreme altitude" as some sort of impossible criterion and who were considering air technologies with unusually powerful engines might be interested. Maybe it was because the project was new or that the Army was already involved or just that our records of the case are incomplete, but the investigation by Sigr seems incompetent. The investigation seems to have consisted of

1 An interview and correspondence with Oscar E. Monnig, a knowledgeable amateur meteorite buff who was not directly involved with either the event itself or the meteorite-fragment hunt at all. This was the only direct interview by T-2, and occurred due to an accidental coincidence of Maj. Melvin W. Faulk (of Clingerman's office) just happening to have a training flight in the vicinity (Faulk, 1948)

2 Photographs of smoke trails of known meteorites were collected to compare to the Norcatur smoke trail

3 USAF Scientific Advisory Board personnel associated with research and development were apparently contacted for help. Someone, possibly geophysicist Helmut Landsberg, contacted meteoriticist Lincoln LaPaz for an assessment

4 Suggestions from a citizen, Norman G. Markham, were passed from the Army to USAF and LaPaz, as if they should be taken seriously, and some local interviews were also provided

5 LaPaz wrote a brief report in April, and the Monnig wrote a letter in May. This completed the investigation

It was poor judgment not to send a project investigator to the site or work with LaPaz (or whatever experts were available) to interview witnesses and look for debris. No one from Wright-Patterson seems to have gone to Norcatur, talked personally with LaPaz (or with H. H. Nininger, who finally discovered fragments of the largest stony meteorite found up to that time), or got any direct evidence at all. Moreover, it was not at all certain that they were dealing with a bolide.

For example, the letter from LaPaz in April 1948 contained the following facts

1 LaPaz believed that the "flying lenses" were 99% hoax and imagination but 1% real
2 He believed the Norcatur object was a bolide, but he could not be certain "not a trace of meteoritic material has so far been found"

3 An unusual number of such experiences had produced no meteorite finds and he wondered what was going on. Could it be that "many of the fireballs are not meteorites at all?"

4 "The situation cries aloud for thorough investigation" (LaPaz, 1948)

LaPaz was also puzzled by the testimony of witnesses who reported artificial objects in association with the case. One witness believed that a battery-like thing fell from the sky "too hot to handle" just after the explosion, another witness backed him up. Five individuals, including three in the tower at McCook Field in Nebraska, reported a dark object like a missile with a jet coming out the back. All specifically denied that the object was like a meteor. And finally, a prominent farmer of good character who lived near Stockton, Kansas, gave amazing testimony of what we would today call a close encounter of the first kind: a close-range observation showing clear structural details. Because this material is so rarely seen by ufologists, it might be of interest to recount farmer Leland Sammons's description in full:

On February 18 at about 5 PM, I was standing near my hog-pen about 100' east of my house, when I heard the pheasants raising a disturbance and the chickens all rushed to the chicken-house. I looked around toward the house to see what was causing it and saw something hovering just above the house. I ran toward the house, and it then lowered over the north end of the house and settled toward the ground. I was then very near it, approximately 6' when it stopped about level with my face, and just wobbled around for an instant, fire belching out of it and sucking back in. The thing was about 4' long, shaped something like a funnel. There was a pipe sticking out the back of it, and once as it wobbled around, the pipe was sticking right at my belly. Suddenly there was a lot of sparks showered from it, and the fire increased as if a fuse might have lighted, and it took off in a north-westerly direction very fast, gaining altitude as it went. My wife heard it leave and ran out where I stood, and we watched it go, leaving a trail of smoke all the way. Suddenly there was a great cloud of smoke in the sky, not more than 40 seconds after it left my yard, and in a few seconds or more, we heard an explosion. I then stepped off from my house to where it had been, and it was five steps. Yes, it was hot, I could feel the heat from it. Had I not been washing my car prior to the occurrence, wetting the ground, there would have been a bare spot in the yard where the thing started up because there was a great rush of fire from it when it left. It must have been quite high when it exploded. [Cox, 1948]

One of LaPaz's colleagues had interviewed Sammons, and believed him to "be sincere and very badly scared." One can almost feel LaPaz scratching his head between the lines of his letter as he asks: How could a bohde create such a report in a mature and sincere person such as Sammons?

In addition to all this was extensive correspondence by Norman G. Markham, the first piece of which was sent to the Army Chief of Staff on February 20 (Markham, 1948). Markham was a lover of anomalies, a Fortean, and he felt that he had calculated a connection between the Norcatur event and the position of the moon. Markham

suggested that perhaps the moon was inhabited and that flying objects visiting earth come from there. Several other past events were cited to buttress his views. This correspondence was not discarded as obviously crackpot. It went from the Army to the Air Force to Sign to the Scientific Board to LaPaz. Although LaPaz believed Markham's views to be fantastic, he noted that Markham was correct to call attention to certain unexplained incidents, possibly of real flying disks. One wonders whether Project Sign's statements six months later—that they had been plotting disk reports in relation to the positions of planetary bodies (and finding correlations)—stem from Markham's letters in this case file.

Whatever we have here in the Norcatur case, the investigation seems poorly performed. There were no direct interviews or other fieldwork, and the meteorite explanation was accepted on a letter from the uninvolved amateur, not a direct report from Nininger or LaPaz. No crater was ever found or photographed and placed in the file. And (this is the most telling aspect) the pattern of ignoring inconvenient contrary witness testimony was quietly condoned. What of the five "rocket" witnesses or Leland Sammons? It seemed that no one cared. But why this attitude, given the alleged concern at the times?

The next case activity worth citing was April 5, 1948, at Holloman AFB in New Mexico. Three highly trained balloon observers, including the project leader, J. W. Peoples, were working on a secret project for the Air Force's Watson Laboratories. They saw two objects. One observer followed one object, and the others followed the second object as they diverged. All were certain that the objects weren't balloons. They were large, whitish, roundish, very high, faster than any aircraft, and performing rapid, erratic motion. One object was lost low. The other went up quickly and seemed to just disappear. This case was deemed important enough to send Loedding and one of Clingerman's assistants, Lt. Col. J. C. Beam, to New Mexico to interview Peoples and the others. Unfortunately, the witnesses were gone when Sign arrived. (They were later interviewed at Watson Labs in New Jersey.) The witnesses were very sure of themselves and the case was classed as "Unidentified."

While at Holloman, Loedding and Beam talked with a Lieutenant Markley who had worked with the Watson team. Markley remembered one of them speaking of unusual radar returns from their equipment, but later the Watson personnel said that these were probably just "angels" (spurious echoe due to atmospheric microstructures, insects, equipment malfunction, or other stimuli). Markley did report that UFOs had been seen around Holloman often. He himself had seen a disk in August 1947 and flat, round aeroforms on at least two further occasions. Beam and Loedding took a side trip to Phoenix, Arizona, to check up on an old sighting that especially interested Loedding—the July 4, 1947, case of a scooped-disk aeroform photographed by William A. Rhodes. Loedding's own views of a low-aspect, disk-like lifting body undoubtedly resonated with the object depicted in the Rhodes photos, and the report of their interview is very respectful. One might see this investigation as merely Loedding's interest, but it was generally true that Sign was interested in all the evidence, not just the cases which occurred "yesterday." At the end of their trips Beam

and Loedding suggested that it was premature to place a permanent observing team at Holloman, despite the amount of activity that seemed to have occurred there

The Memphis, Tennessee, case of May 7, 1948, is worth a brief mention. Two adult witnesses saw 50–60 unusual objects, apparently moving very high and fast, traveling in straight lines with slight zigzagging. They seemed shiny, like bright aluminum, with silvery trails. Beam also went out on this one. Three things are noteworthy about this case:

1. Astronomer Paul Herget of the Cincinnati Observatory said that he doubted that these objects were meteors.

2. This case was the first to mention J. Allen Hynek, then an astronomer at Ohio State University, whom Herget recommended they talk to.

3. A year later, the military Research and Development Board was viewing such observations of luminous, “definitely or possibly non-meteoritic,” objects as important and requiring immediate action—including requesting this particular case file.

In the official Blue Book records, the Air Force unaccountably classed this case as a “meteor.” Perhaps it was, but the experts appear on record as not thinking so. The assessment was probably not the original thinking of the Sign office. It is more likely the late-1948 thinking of Allen Hynek, once he was formally asked to make astronomical determinations, when possible, for UFO reports. His study, which was more an embarrassment to him in later years, would appear as an appendix to the reports of projects Sign and Grudge, Sign’s new designation in 1949 (Hynek, 1949). Hynek viewed his job in these first case assessments as debunking. He was to get rid of UFOs as any sort of exceptional anomaly even when the so-called explanation he came up with was a huge stretch. He said that he originally enjoyed his job as a debunker (Hynek, 1973: 171–172, 1977: 34–38). Unfortunately this was a completely wrong-headed attitude, and it took him a long time to shake it thoroughly and return to a properly objective analysis of cases as they came in. But in May and June of 1948, Hynek was not yet around to throw water and rocks at mysteries, so Sign personnel probably viewed this and the next three cases to be real puzzles rather than foolishness, ignorance, or misperception.

The next case occurred between Plevna and Miles City, Montana, on May 17. There was one witness, a professional man named William A. Bonneville who believed that reporting this air intruder was a patriotic duty. A bright white ball, brilliantly illuminated (three times as bright as a locomotive’s headlight would be), sailed over the hills from the northwest, and then to the south and back to the west, and repeated these meanderings for 20 minutes until sailing away into a dark cloud. No sounds could be heard. A long, bright light shot out from beneath. Somewhat stunned by this performance, the witness stated (with the charming naivete of the 1940s):

anything of this nature which we are not familiar with we are duty bound to report to our Defense Forces who may be better equipped to understand the unfamiliar than we are.

Sign was probably as boggled by this experience as Bonneville was. But later,

someone was up to the task The case was explained away as "refraction of the planet Mars" This explanation is of interest not only because of its apparent ridiculousness, but because it is precisely the sort of idea continually used by Donald Menzel (Harvard astronomer and arch-enemy of UFOs in the 1950s and 1960s) in his later books and articles (Menzel, 1953) This refraction or mirage hypothesis was Menzel's siege gun Almost any UFO case became a game to find some bright astronomical object in the general direction of the witness' line of sight, and then invoke misperception, ignorance, confusion, or rare atmospheric phenomena to account for the report But as far as we know Menzel was not consulting on any of these 1948 cases So where did this explanation come from?

INTERLUDE: J. ALLEN HYNEK AND SIGN

J Allen Hynek formally became an astronomical consultant to Sign in 1948 The Plevna, Montana, explanation is one that probably came from an astronomer This is a good place to try to understand Hynek's role, though it will not be possible to do so with any great certainty because of the lack of documentation concerning his earliest relations with the project But it does offer an important glimpse of the Air Force's approach to UFO analysis

We know that Hynek was officially tasked with studying UFO cases for astronomical explanations on December 16, 1948 This was Air Materiel Command contract W33-038-1118, the final report of which became the appendix for the Project Grudge report that largely debunked UFOs in 1949 (Hynek, 1949, USAF AMC, 1949b) We also know that Herget suggested him as a consultant to the project around late May 1948 Sometime between these two dates, Hynek was signed on as a regular consultant and made "interim reports" It sounds as if the idea of a larger formal report (the Grudge appendix) was already in both Hynek's and Wright-Patterson's mind in the summer or fall of 1948 Still, Hynek said that he sent interim reports earlier than his formal study period These reports were largely debunking in nature (Hynek, 1977 15–17) Could Hynek himself have been the source of the "refraction of Mars" pseudoexplanation for the Plevna case? What an irony it would be if Hynek himself initiated the pseudoscientific mirage hypothesis that he would so vehemently criticize when touted by Menzel

Let us first examine the key characteristics of the Plevna report The object was an extremely bright ball of light (brighter than the moon, and three times brighter than a locomotive headlight) that flew through many viewing angles (north or northwest through "south of the road") Whoever was doing the analysis must have had a hard time dealing with both the wide angular travel north to south and the extreme brightness How any refraction would allow Mars to pick up that much extra luminosity should have given any astronomer pause Hynek should have known better

In his final report to Grudge he stated "If this report is to be taken on face value, then no astronomical explanation of this incident is possible" Unfortunately, he continued

However, in seeking even a remote logical explanation for the incident, the present investigator is impressed with the fact that on this very night, May 17, Venus was at its greatest brilliancy, with a magnitude of -4.2, or about 100 times brighter than a first magnitude star. It would have appeared that night as an intensely bright light in the northwest [Hynek, 1949 151]

This statement is of interest in several ways. Mars doesn't enter into it, the language is very subdued, though it stretches for a debunking answer, and there is a subtle hint of Hynek's (and the military's?) fundamental mind-set. Let's comment on each of these characteristics.

This is a Venus answer, not Mars. Hynek was quite ready to relegate many UFOs to Venus (e.g., the Mantell case, even though Sign refused to buy that) Hynek's Venus proposition tried to deal with the brightness while ignoring the traveling excursion. Refraction is never mentioned. Where then does the refraction of Mars come from? It is my opinion that Hynek was blameless. Refraction and mirage explanations were not his style. Of the 200-plus analyses in the Grudge appendix, only two—case number 33 (Mantell) and 229—even hint of such a phenomenon, and the word “refraction” appears in neither place. In case number 148, with a Venus explanation crying out for him to tie up its loose ends with refractions, he never resorts to it. Hynek believed refractions of any spectacular kind to be *very* rare, and even then limited in what they could do (e.g., move erratically about two or three lunar diameters as in case 33). So where did this Menzelian answer come from? Herget? The University of Dayton? A chance interaction with Menzel? We'll probably never know. It does demonstrate a sad, early willingness on an unknown scientist's part to grasp for a debunking explanation wherever one could be found.

Unfortunately, Hynek's tentatively worded guess demonstrated the same thing. He was just being more polite about it. He saw his job as explaining away UFO reports. His typical Grudge style was to make a simple and honestly defensible statement, then (if the first statement didn't explain the case) launch into some low-key speculation. The latter often went well beyond the official descriptions and well outside his charge of providing astronomical analyses. He regularly speculated on balloons, aircraft, subjectivity, and you-name-it. His motives appear to lie in sociology.

Hynek's memory of the Air Force consensus was that there were two contrary schools of thought (Hynek, 1977 13–14). One school, mostly at Wright-Patterson, felt that UFOs were real, technological, and, probably interplanetary. The second school, a majority in the Pentagon and a minority at Wright-Patterson, felt that the UFOs were nonsense. The Air Force's elite Scientific Advisory Board lined up on the side of nonsense, and these were the Elders of the Tribe of Science to which Allen Hynek belonged.

It may be that my interim reports helped the transformation of Project Sign into the extremely negative Project Grudge, which took as its

premise that UFOs simply *could not be* I tried hard to find astronomical explanations for as many cases as I could, and in those that I couldn't I reached to draw out as many natural explanations as possible Sometimes, I stretched too far

Clearly, I, too, thought at the time that UFOs were just a lot of nonsense I enjoyed the role of debunker [Hynek, 1977 17]

Hynek's mea culpa would have done much to relieve the sting of his early unscientific behavior in this matter if no one had paid any attention to him Some did not, but others did The core team at Project Sign apparently paid little or no mind to Hynek's negative analyses or interim reports They were well on their way to their famous Estimate of the Situation and its interplanetary conclusion If Hynek influenced bigger movers and shakers, like Clingerman and McCoy, there is no evidence of it Who then did he affect? Possibly he influenced the negative school in the Pentagon, though there is no direct evidence of this The Pentagon-created anti-UFO report of December 10, 1948 (USAF AID & USN ONI, 1948) shows nothing that could be attributed to Hynek He may well have spoken to his tribesmen on the Scientific Advisory Board though, and in doing so reinforced their stance

Those who were clearly influenced by Hynek were the people who read the Grudge report and who took over the UFO project after the sympathetic Sign team was broken up and dispersed The evidence is abundant It consists of the case evaluations written on the lower right-hand corners of the project's cards that led off the files of each individual report There, scrawled in the corners, one can get the digested version of what the Grudge project was concluding about the cases balloons, Venus, meteors, aircraft Usually these were stolen directly from Hynek's report Most regrettably, they were lifted from the speculation or stretch sections of each case, even when it was obvious that Hynek didn't think much of the explanation himself Hynek had been very helpful

One last thing before getting back to Sign's history Note this phrase in the Plevna analysis "in seeking even a remote logical explanation" A *logical* explanation This was a telling phraseology These cases *couldn't* be what they seemed, this would not be "logical" Such objects were irrational, unscientific, they could not make sense This was probably not only Hynek's restricted mind-set, but the Scientific Advisory Board's *in toto* It was something that we do not understand enough about scientists and do not like to admit about them Their curiosity is great, *and* it is restricted within broad but nearly ironclad limits Outside of those limits is the realm of illogic and ridicule Even in 1977, as he reminisced about his early sins, Hynek had still not made the complete transformation He still spoke of "rationally" and "astronomically" as if one somehow defined the other (Hynek, 1973, 1977) His Grudge report, with its astronomical and often irrational comments, stood as a rich source of explanations for things not explained, and doubtless he and his tribesmen felt good about it What an odd and dangerous way to come to conclusions on a matter of possible national security interest

SIGN ROLLS ON

Ignoring the negative attitudes of consultants and the Pentagon, the Sign team was moving toward the watershed moment for the Project—the Chiles-Whitted case. We'll take two brief stops before arriving there. First, east of Monroe, Michigan, May 25, 1948. Two Air Force officers were flying as passengers in an Air Force plane, one saw three objects come down from above and level off, approximately even with the plane and ahead of them. They were fuzzy-edged disks, and flying "astern" (one in line behind the other) and "stepped up" (those behind slightly elevated in step fashion). The objects were in sight about 10–15 seconds, flew opposite the plane's direction, took a sharp right turn, and were lost to sight. The viewer was fascinated by this and didn't call it to the other's attention until too late. Fortunately, moments later, a similar performance was put on by two disks instead of three. Both officers saw the action the second time.

The officers made wildly different size estimates (showing the dangers of this well-known subjective error when there are no clear referents), but the rest of the descriptions matched. Later for Grudge, Hynek followed his pattern. He said that there was no astronomical explanation. Then he speculated freely about holes in clouds, allowing a pattern of isolated shafts of sunlight to bounce off lower clouds and cause perfect echelon reflections moving opposite aircraft motion. The Grudge debunker was happy to write "Probable reflection" on the case record card, despite the fact that when Sign specifically asked for an opinion of the witness about reflections, they received a flat "no." Sign almost certainly felt that this was a UFO case. Grudge later "explained" it. Who knows what Hynek thought?

Next, Hecla, South Dakota, June 30, 1948. A husband and wife were driving and saw an unusual "star" high in the sky. The husband, an amateur astronomer and engineer, stopped the car and they got out to look for a while. The star, which they were pretty sure was *not* a star but a much larger (in angular aspect) mass, was not moving at all. They drove on, stopped again, and got others to look. More driving and another stop. This time, something seemed to be happening. The mass, still visually small, seemed to be larger and changing shape. A piece "fell off," moved away, and appeared like a round ball. Two more pieces now did the same, and moved to positions off the central body, which formed a perfect equilateral triangle. All the balls and the central object looked like polished aluminum. The central object now appeared like an aggregation of much smaller objects that dispersed and faded away. The three equilateral balls kept moving outward, always keeping their perfect geometry. Then they seemed to get smaller and fainter, as if rising to great height, and vanished. The astronomer-engineer said "my convictions at this point were that it could not be anything terrestrial."

Sign probably agreed. Hynek again did his thing. This was nothing astronomical, on the other hand, "in all probability the object was a cluster of balloons, carrying, perhaps, cosmic ray apparatus." The explanation was within the normal pattern of Air Force explanations for the next 20 years. Find something sort of like what's

described, ignore some awkward elements, say "maybe," and count it explained. The ignored awkward element here was the perfect equilateral triangle allegedly formed by the unintelligent, motorless balloon parts Hynek's "maybe" became "fact" when the Grudge record card was labeled "BALLOON JAH," in honor of J Allen Hynek.

And then came the Chiles-Whitted case. Capt Edward Ruppelt, chief of the UFO Project in 1951–1953, said

According to the old timers at ATIC [Wright-Patterson T-2 Intelligence division was then named Air Technical Intelligence Center], this report shook them worse than the Mantell Incident. This was the first time two reliable sources had been really close enough to anything resembling a UFO to get a good look and live to tell about it [Ruppelt, 1956 40–41]

Between this event and the ultimate demise of Project Sign, many other interesting cases and activities occurred, but because of the overriding significance of this experience for the project's history, the other cases will be (mostly) ignored. From this point forward, the history of Project Sign primarily reflects the Chiles-Whitted case and those thoughts, beliefs, and actions that became closely related to it.

The observation occurred in the early morning hours of July 24, 1948. An Eastern Airlines flight was near Montgomery, Alabama, flying at 5,000 feet and soon to land. The night was mainly clear. Pilot Clarence Chiles and copilot John Whitted were at the controls. Most of the passengers were asleep. Ahead of the plane and slightly above (the pilots estimated about 5,500 feet), a flying object came into view. Chiles said to Whitted "Look, there comes one of those new jet jobs." As the device came nearer, they became more amazed. It was shaped like a DC-6, but with neither wings nor tail, a "flying fuselage." It seemed to be about 100 feet long with a barrel diameter about three times that of a B-29. At an estimated 500 miles per hour it took about 10 seconds to pass their plane and pull up sharply through the broken clouds overhead. They estimated its closest approach to be about half a mile. The device was dark at the front with a blue glow underneath. Red-orange jet exhausts spewed out 30 feet behind. The most spectacular aspect of its design was two double-decked rows of brightly lit, large, rectangular windows along the sides. Chiles thought he saw a more dimly lit front-cockpit area. Whitted did not. The whole display seemed a lot brighter and more vivid to Chiles than it did to Whitted. Still, in general estimates and configuration, the two pilots concurred.

The Eastern flight landed shortly afterwards and the pilots reported everything to their managers. Eastern released the reported details to the newspapers that day. The case immediately made national news "Buck Rogers-like Plane Passes 2 Airline Pilots!" Everyone was reading the story the evening of July 24. It caught the attention of the Pentagon as well. The next day, Chief of Air Force Intelligence Gen Cabell phoned McCoy's office at Wright-Patterson. Sign was ordered to get into the field immediately and investigate. By that afternoon, Loedding, Deyarmond, and

Llewellyn were being flown by Capt Clarence Groseclose to Atlanta They met Chiles and Whitted in the Henry Grady Hotel the next day

The interviewers (Loedding and Deyarmond) were impressed The pilots told their stories, as recounted above, and were consistent Both pilots had been military veterans and had good commercial reputations Chiles particularly was considered by his bosses to be outstanding Loedding, an excellent aeroengineer who leaned towards the extraterrestrial hypothesis, must have been stunned Deyarmond seemed a more grounded military engineer, but he too had to be enthusiastic This seemed to be the case Sign was looking for Later, Llewellyn was able to locate and interview the lone passenger who had awakened and noticed something He only saw the bright red-orange exhaust of the retreating object and no details Still, it was a small corroboration Presumably, as Cabell himself had ordered this, they made some preliminary report to the Pentagon and began their analysis back at Wright-Patterson

The pieces of Sign's thinking coalesced around this case during August and September of 1948 In the first week of August they received word of an independent ground witness (an experienced observer on a military base) to the Chiles-Whitted object They immediately requested details from the base Although official forms took about a month to arrive, this was another corroboration Cross-checking anomalous cases, they noted that an apparently identical object had been sighted over The Hague, Netherlands, on July 20 They also recalled the wave of so-called "ghost rocket" sightings over Scandinavia in 1946 and early 1947—more jet-propelled, flying fuselages They requested special interviews for more information on August 19 It looked like the Chiles-Whitted object was the real thing

But how could it fly? It was the exploration of this question that, I believe, finally tipped the balance The object was a wingless, tailless fuselage It was not simply a missile, it had windows, ergo, presumably, pilots and passengers It must be able to take off, maneuver, and land But how? This is exactly the sort of problem that air-intelligence engineers love When they dove into it and (in their minds) came up with the solution, it placed the last powerful overlay of reality on the investigation They found their aerodynamic answers in the advanced theories of the German aerodesign geniuses Ludwig Prandtl's theory of lift provided not only the rationale of how such an object could fly, but also a guesstimate of the required power plant (USAF AMC, 1949a) The latter then took them the final step into the Land of Oz Conventional power plants were nowhere near sufficient It would take something much more powerful to fly the Chiles-Whitted object perhaps something nuclear

This investigative odyssey must have been as exciting as it was astounding Nuclear-powered aircraft, or something even more unsuspected We couldn't do it The Soviets couldn't do it Sometime during all of this the project personnel must have wondered about the correlations that they felt they were finding between UFO events and close approaches of the inner solar-system planets Based on these correlations and their new conviction about Chiles-Whitted, Sign later sent notice to the Pentagon to alert all operatives, bases, and the other services to the potential for new UFOs reports in mid-October (Earle, 1948)

THE ESTIMATE OF THE SITUATION

In September 1948, Sign heard the details of the Chiles-Whitted ground-witness corroboration. The third qualified observer had seen a cylindrical object jetting red-orange exhaust over Robins AFB in Georgia, one hour earlier. It was heading in the direction of Montgomery. Project officer Capt. Robert Sneider had decided that the time had come to climax the project's task and write the required "Estimate of the Situation." Every intelligence operation's task was ultimately to present such a best-guess summary, strongly backed with as much fact ("proof") as possible. Using Chiles-Whitted as the core, and collecting around it many cases from the summer of 1947 to September 1948, Sneider composed the fateful document. The latest case known to have been utilized in the document took place on September 23, at Los Alamos National Laboratory.

We know that two prominent Air Force intelligence officers (Ruppelt and Fournet) saw the document in 1952. Ruppelt described it:

It was a rather thick document with a black cover and it was printed on legal-sized paper. Stamped across the front were the words TOP SECRET [Ruppelt, 1956 41]

As project officer, Sneider would have been the primary author. Throughout this era, several other staff members typically got involved in approvals and sign-offs on drafts and reports. Deyarmond, Loedding, and Truettner almost certainly were part of the writing. Llewellyn certainly looked in. All these people, as well as higher-ups in Clingerman's and McCoy's offices, had to approve, at least in some sense. And an Estimate of UFOs as extraterrestrial would have been no small thing to assent to.

No one can give a detailed description of the contents of this famous yet mysterious document, as it has not been available for modern analysts to read. Yet the following cryptic description by Ruppelt, only the last paragraph of which made it into his book, offers some hints:

As documented proof, many unexplained sightings were quoted. The original UFO sighting by Kenneth Arnold, the series of sightings from the secret Air Force Test Center, Muroc AFB, the F-51 pilot's observation of a formation of spheres near Lake Meade, the report of an F-80 pilot who saw two round objects diving toward the ground near the Grand Canyon, and a report by the pilot of an Idaho National Guard T-6 trainer, who saw a violently maneuvering black object.

As further documentation, the report quoted an interview with an Air Force Major from the Rapid City AFB (now Ellsworth AFB) who saw twelve UFO's flying a tight diamond formation. When he first saw them they were high but soon they went into a fantastically high speed dive, leveled out, made a perfect formation turn, and climbed at a 30 to 40 degree angle, accelerating all the time. The UFO's were oval-shaped and brilliant yellowish-white.

Also included was one of the reports from the AEC's Los Alamos Laboratory. The incident occurred at 9:40 AM on September 23, 1948. A group of people were waiting for an airplane at the landing strip in Los Alamos when one of them noticed something glint in the sun. It was a flat, circular object, high in the northern sky. The appearance and relative size was the same as a dime held edgewise and slightly tipped, about 50 feet away.

The document pointed out that the reports hadn't actually started with the Arnold Incident. Belated reports from a weather observer in Richmond, Virginia, who observed a "silver disk" through his theodolite telescope, an F-47 pilot, and three pilots in his formation, who saw a "silver flying wing", and the English "ghost airplanes" that had been picked up on radar early in 1947, proved this point. Although not received until after the Arnold sighting, they all had taken place earlier [Unedited MS of *The Report on Unidentified Flying Objects* in Ruppelt files]

The Estimate would have been addressed to Chief of Staff Gen Hoyt Vandenberg, but it really was meant for Director of Intelligence Gen Charles Cabell. It was probably sent near the end of September, just prior to the next stunning UFO case—the George Gorman "UFO Dogfight" in Fargo, North Dakota, on October 1 (Ruppelt, 1956: 41–43). It would have landed in Garrett's Collections office and been hand-carried to Cabell. Cabell may or may not have been shocked. It is my guess that he and his operatives knew what was coming. Very few real surprises are good strategy in military circles. Still, with a pro-ETH Wright-Patterson intelligence group on one side, an anti-ETH Pentagon Intelligence Requirements Office on the other, and open-minded collections officers and the powerful Research and Development chief (Gen Donald Putt) in between, Cabell didn't want to decide this on his own. He handed the Estimate further upstairs to Vandenberg himself (Ruppelt, 1956: 45).

Upon reflection, this seems a bit extraordinary. Cabell's job was to deal with these Estimates and not burden Vandenberg with them. And Cabell almost certainly had to know that this was coming. But he still ducked. This situation, UFOs and extraterrestrials, was too big for anyone but the chief of staff himself to rule on. Cabell must have been in doubt about this, not just about the reality of UFOs but their extraterrestrial nature. It was Cabell who reinitiated the Wright-Patterson UFO project in 1951 as a serious investigation and cleaned the anti-ETH elements out of Wright-Patterson and the Pentagon (Ruppelt, n.d.). And much later, in the 1960s, Cabell told UFO and ETH-friendly CIA photo analyst Art Lundahl that he still felt the UFO matter deserved serious investigation (McDonald, n.d.).

But Vandenberg didn't have any doubts—not about action anyway. In what was apparently a very short time period for contemplation, the chief sent the Estimate cascading back down channels to Sign as unacceptable. We don't know who Vandenberg consulted or why he did this, but he was quick and decisive. He did *not* want an extraterrestrial assessment. He was saying clearly and loudly to Sign and

everyone in between that he was not happy with this

The timetable is uncertain, but a few facts are known An October 7 document from Sign to Garrett and Cabell is an upbeat Sneider report on the initial investigation of the Gorman dogfight, making the object sound extremely unusual and intelligent in behavior This was almost like a supplement to the Estimate (Sneider, 1948a) However, on the same day a separate set of letters, composed not by Sneider but by S Z Hunnicutt, a member of T-2 and the Sign team, and approved by MCI heavyweights McCoy, Clingerman, and Leland Money, went out to the CIA, U S Army Intelligence, and the Office of Naval Intelligence The query What domestic (U S) technological developments do you know of that might explain UFOs and help us differentiate them from inimical (Soviet) foreign developments? McCoy writes in Hunnicutt's letter

To date, no concrete evidence as to the exact identity of any of the reported objects has been received Similarly, the origin of the so-called "flying disks" remains obscure [McCoy, 1948a]

This certainly was not the conclusion of the Estimate McCoy may have already gotten the word None of the primary Sign personnel signed off on the draft

The intelligence roil over this extraterrestrial conclusion for UFOs must have been fierce in October Headquarters had expressed dissatisfaction over Sign's views but, fueled by the enthusiasm over the Gorman case investigation, Sign was undaunted at first McCoy was caught in the middle The fact that Sign proceeded with their ETH opinions in the face of high-level Pentagon opposition is a source of some wonder Either Vandenberg's slap down was very mildly delivered, or there was much support, albeit in the minority, for the respectability of the ETH in the Pentagon Otherwise, McCoy would have reined in his staff at Sign My guess is that both conditions were true

In October, Sign personnel met with Garrett in the Pentagon to make reports, especially those from foreign sources, more efficiently transferrable to the project Word was spread about the impending new wave of reports due soon (which apparently actually happened) Internal memos referred to the Gorman case as possibly nuclear-powered and interplanetary A request was made for the Rand Corporation to assess the feasibility of interplanetary spaceships (Clingerman, 1948a) Meanwhile, opposing elements in the Pentagon were marshalling their forces for a counterstrike The most hostile area, the Defensive Air branch of Air Intelligence, had been pursuing a study of "flying saucer tactics" since early August, when the first assessment of the Chiles-Whitted object had reached them Now AFOAI-DA brought the Office of Naval Intelligence seriously into this game ONI had been mildly involved with USAF concerns about UFOs since it had requested to be included in January 1948 (USN Chief of Naval Intelligence, 1948) Out of this liaison would come a counter-ETH report in December More immediately, AFOAI-DA and ONI would begin to change the atmosphere in the Pentagon to a more hostile, overt position Ultimately these efforts swayed Cabell into writing a firm letter to

Wright-Patterson on November 3 (Cabell, 1948a, see Appendix 2)

It would be interesting to know who composed this letter for Cabell to sign. Two prime candidates are AFOAI-DA, the office of the consistently anti-ETH saucer-killer, Maj Aaron J Boggs, or the Office of Director of Estimates, wherein resided Boggs's main anti-ETH confederate, Col E H Porter, who was its deputy director. Essentially, the letter asked Sign for another Estimate. While admitting that the objects seemed real, it also cautioned that they were *not* identified (Read You may *not* identify them as extraterrestrial craft.) Efforts at identification must be serious and increased, since national security was concerned. Countermeasures must be considered. All of these comments were in line with Boggs's and Porter's concern (as well as many others) that some objects could be Soviet- or Nazi-inspired weaponry. While Sign had been immersed in a world of investigating essentially local cases, the darker Pentagon corridors had been fixated on the Soviets and German scientific geniuses. Two different realities had been created.

Wright-Patterson's response was timely. By November 8, a Sign viewpoint was sent over McCoy's signature to Cabell and presumably Boggs, Porter, and ONI (McCoy, 1948b, see Appendix 3). The letter, written by Sign operative Deyarmond, was overtly submissive but covertly rebellious. It contained several comments agreeing with Cabell that the phenomenon was not identifiable and that no concrete physical proof existed to identify it. At the same time it dropped all sorts of hints, doubtless the same arguments used in the original Estimate, that the objects really were extra-terrestrial whether the Pentagon thought so or not. It mentioned the ETH, it mentioned plotting waves against planetary approaches and finding a correlation, it mentioned the books of Charles Fort as indicating that this has been going on for at least a century (Fort, 1941), it mentioned that odd shapes (like Chiles-Whitted) can fly but require more advanced power plants than we have. It is interesting that the letter was written by Al Deyarmond, who was McCoy's old WWII buddy. One can imagine the two conferring personally on exactly what tactic Sign could take that would still be consistent with what McCoy was willing to say. The letter seems very strategically worded. McCoy was sympathetic to UFOs and remained so his whole life. In the late 1950s, stationed in Washington, he was a frequent and interested visitor at the major civilian UFO organization in the world, the National Investigations Committee on Aerial Phenomena (Swords, 1997).

SHOWDOWN AND AFTERMATH

The Pentagon surely recognized the letter for what it was: a diplomatic refusal to give up. Either it or Sign initiated a confrontational meeting on this scheduled for November 12. Meanwhile, on the 10th, Deyarmond completed his reassessment of the Mantell crash from the beginning of the year. The object could *not* have been Venus, he concluded, and therefore was a true unidentified. With this added ammunition, some Sign personnel trekked to Washington to attempt to convince Cabell and Vandenberg of the ETH (Ruppelt, 1956: 45). Other than Schneider, we don't know

who attended from the pro-ET side Deyarmond, Loedding, and perhaps even McCoy are good candidates Ruppelt wrote that a "group from ATIC" went The meeting was held at the National Bureau of Standards Again, we don't know who attended on the D C side Boggs is known to have been there Ruppelt hints that Vandenberg himself was there Some representative of the Air Force's Scientific Advisory Board came (probably Col Ted Walkowicz) NBS personnel attended As Edward Condon was then director, he may have had a stiff introduction to ufology at that time Others, including Cabell, were certainly present

I suspect that this was the final watershed moment for the project Boggs, Porter, and ONI essentially won the war Suddenly all the big scientific guns and overseers were required to peek over Sign's shoulders and assess their work The Scientific Advisory Board and George Valley of MIT were to be made aware of all cases So too Boggs' office, ONI, and maybe even the NBS (USAF DI, 1948, McCoy, 1948c, Clingerman, 1948b, McCoy, 1948d) Hynek was to be formally commissioned for an assessment, as well as Irving Langmuir and Rand Going back home to Dayton, Deyarmond and Truettner went about the labor of writing the sanitized final Project Sign report of November 30 (USAF AMC, 1949a) Loedding met with Langmuir and had his views rebuffed He said that he learned that "his stock was at an all-time low" in Washington (*Trenton Times-Advertiser*, 1954) Sneider continued to believe that the Chiles-Whitted case was undeniable evidence, but it was a battle lost for almost everyone else

On December 10 the victorious powers in the Pentagon published their own version of an Estimate—Air Intelligence Report number 100-203-72, *Analysis of Flying Object Incidents in the US* (USAF AID & USN ONI, 1948) This was the culmination of AFOAI-DD's work since early August, augmented by ONI collaboration over the past two months UFOs are not extraterrestrial (the idea was hardly noticed) UFOs are probably real, but if so there is a small chance that they are Soviet and therefore dangerous All in all, the word "Soviet" dominates the commentary This estimate, like that of Sign, was classified top secret Sign's Estimate was ordered destroyed Six days later, the director of research and development ordered that the code word Sign be changed to Grudge Ruppelt said that the choice of words was not random (Ruppelt, 1956 59–60) The Air Force bore a grudge against UFO reports One would guess that quite a few grudges remained among the contending intelligence elements Ruppelt said that by the end of 1948 the morale on the project was very low and no one wanted to do the work any more Sneider persisted with his analysis of the Chiles-Whitted object, and his five-page summary, Air Intelligence Report number 102-122-79, was forwarded to Cabell on December 20 (Sneider, 1948b) It has been called, probably insightfully, "The Ghost of the Estimate" by some UFO researchers Report no 100-203-72 has also been given this nickname, much less insightfully It might more properly be labeled "The Assassin of the Estimate"

By the beginning of 1949, Sign personnel had begun to evaporate Loedding disappeared from project records Deyarmond's attention went elsewhere Truettner

made one last serious attempt at interviewing about nuclear propulsion (at Oak Ridge), and was given a negative opinion on UFOs by Col Wassell He, too, disappeared from the project The civilian members were relieved of their duties and reassigned to other intelligence tasks within T-2 For Loedding in particular, his role and prestige were never the same After a few further years of intelligence work, both he and Truettner left AMC For the higher military ranks (Llewelyn and Sneider), all we know is that they were soon no longer involved, perhaps not even assigned to the same base Even Clingerman and McCoy became less involved, perhaps because they had also heard that their tenures would soon be up and they would be sent to school and then transferred The only persons left active on the project were two of the lower ranks Lieut Howard Smith and civilian George Towles Their job was reduced basically to collection and filing In this condition, or worse, would remain the Air Force commitment to a UFO investigation project until the summer of 1951 two years of neglect (Ruppelt, 1956 59–95)

The Estimate and Sign had their revenge, however, in an unintended way For whatever reason, the public and the media had become more interested in UFOs at the turn of the year Perhaps the Mantell, Chiles-Whitted, and Gorman cases were having an effect on popular opinion, as well as behind the doors of secrecy Or perhaps the doors of secrecy were leaky Either way, the media was becoming proactively interested (Shalett, 1949) Sidney Shalett's push into the Pentagon to get Defense chief Forrestal's permission for a *Saturday Evening Post* article was the most spectacular example of this, but other magazines such as *Argosy* and *True* were snooping around as well (Moorehouse, 1949, Keyhoe, 1950a) Shalett visited the Pentagon and Wright-Patterson in early 1949, and got case information and quotes for his two-part article that would appear in April 1949 (Clingerman, 1949a) While he was collecting information, two things happened directly related to our story The first was that the Pentagon really didn't like the idea of a civilian press person messing around a classified subject and then writing a "Lord knows what" rendition of what he'd found with apparent government approval (Cabell, 1948b) Therefore, the Pentagon determined to produce its own more elaborate report to be released simultaneously with the *Post* article (Boggs, 1949)

The second awkward moment occurred when Walter Winchell apparently was given a "Pentagon rumor" that the UFOs were Soviet missiles, and announced as much on his national radio program (Clingerman, 1949b) The rumor was pretty much what some Pentagon loose cannons would have said if they had been privy to the information and attitude of Air Intelligence Report number 100-203-79, the so-called "Assassin of the Estimate" By killing the Estimate, the Pentagon had produced an awkward and unhelpful rumor that they hurried to deny, but which stuck in many citizens' minds

The Pentagon was clear in its intent to create and release a countering UFO report, but it blundered in executing the task Whoever was responsible did not use the AIR information or perspective, or a strong debunking attitude of any kind Instead, the report—called Project Saucer to match the nickname given Shalett to use in his

article—was written in the mildest agnostic tradition of the post-Vandenberg Project Sign (USNME, 1949) It read like a sanitized Estimate

How this UFO-friendly report was released is itself a mystery Someone at AMC in the Public Relations Office had written something called “Flying Saucer Story,” which was aimed at public release in order to give the official story This was described as an article, whereas the Project Saucer press release was 22 pages long Still, they may have been one and the same

This article was shipped to the Pentagon’s director of public relations, and from there to the Intelligence Department There some disagreement occurred between Boggs, Brig Gen Moore, and Cabell (Boggs, 1949) Apparently Cabell himself approved the friendlier Project Saucer release, coming down squarely between the attitude of the Estimate and the attitude of his antipathetic underlings Boggs and Moore A line from Boggs’s memorandum cited above reads like a comment from Cabell

AFOIN [Cabell] found no grounds for denying information to the press on incidents and investigative accomplishments such as were furnished
Mr Shalett

Whether the busy general had time to think through all the aspects of this decision can be debated

So the Pentagon’s poor communications and blundering had produced the exact opposite effect from what they had seemingly intended Shalett’s article was the mainly debunking publication and the Pentagon’s release looked like a corrective in the pro-UFO, amazing-unidentified-technology direction

The individual most confused by all this was a freelance writer brought in by *True* magazine in the hopes of getting more information on the flying disks The Project Saucer release convinced him to make a serious investigation, which got more and more fascinating This, of course, was Donald E Keyhoe the Ultimate “Revenge of the Estimate,” and an ongoing nightmare for the Air Force for the next 20 years (Keyhoe, 1950b, 1953, Swords, 1996, Jacobs, 1975)

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APPENDIX I
GEORGE GARRETT'S FIRST ESTIMATE

FLYING DISCS
30 July 1947

For purposes of analysis by AFBIR-CO, eighteen reported sightings of "Flying Discs" were selected for breakdown into detailed particulars. Each report was assigned a number and each number appears in the left-hand column of the data on the following pages.

One report, Number 7, has not yet been received and therefore no information is included other than Date, Name of Observer, and Location. The Fourth Air Force is attempting to secure a statement from this observer.

Four reports, Numbers 2, 4, 17, and 18, have not yet been analyzed.
The subject headings on which the breakdown has been made are

Date
Hour (Local standard Time)
Location
Observer's Name
Observer's Occupation
Observed from Ground or Air
Number of Objects Sighted
Altitude
Direction of Flight
Speed
Distance Covered
Length of Time in Sight
Deviation from Straight Flight
Color
Size
Shape
Sound
Trail
Weather
Manner of Disappearance
Remarks

JOURNAL OF UFO STUDIES

Report	Date	*Hour	Location
1	19 May	1215	Manitou Springs, Colorado
2	22 May		Oklahoma City, Oklahoma
3	22 June	1130	Greenfield, Massachusetts
4	24 June		Mt Rainier, Washington
5	28 June	2120	Maxwell Field, Alabama
6	29 June	1330	Near White Sands, New Mexico
7	1 July		Bakersfield, California
8	4 July	2015	Emmett, Idaho
9	6 July	1345	Clay Center, Kansas
10	6 July		Fairfield-Suisun, California
11	7 July	1145	Koshkonong, Wisconsin
12	7 July	1430	East Troy, Wisconsin
13	8 July	1550	Mt Baldy, California
14	9 July	2330	Grand Falls, Newfoundland
15	10 July	1600	Harmon Field, Newfoundland
16	12 July	1830	Elmendorf Field, Alaska

* Local Standard Time

Report	Observer's Name	Occupation	Observed From
1		Railroad Employee	Ground
	"	"	"
	"	"	"
2		Businessman-Pilot	Ground
3		*Not stated	Ground
4		Businessman-Pilot	Air
5		Captain, AAF	Ground
	"	"	"
	"	"	"
6		1st Lieut , AAF	"
	Employee, NRL		Ground
	"	"	"
	"	"	"
7		Wife of _____	"
8		Civilian Pilot	Ground
	United Air Lines Pilot	Air	"
	" " " Co-Pilot		"
9		Major, AAF	Air
10		Captain, AAF	Ground
11		CAP Instructor	Air
	CAP Student	"	"
12		CAP Pilot	Air
	CAP Passenger	"	"
13		1st Lieut . ACCNG	Air
14		Constable, Newfoundland	Ground
	Constabulary		
15		TWA Representative	Ground
	PAA	"	"
16		Major, AAF	Ground

*From letter received, observer is obviously well educated

SWORDS PROJECT SIGN

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Report	Deviation from Straight Flight	Color	Size
1	Climbed, dove, hovered overhead, resumed original course	Silver	Apparently small
2			
3	None reported	Silver, very bright	Small
4			
5	Zig zag course "much like a water-bug"	Brilliance slightly greater than a star	Not stated
6	None reported	Some solar specular reflection	Not stated
7			
8	None reported	Almost dusk, could not distinguish	Impossible to determine
9	None reported	Very bright and silvery colored	30-50' in diameter
10	None reported	Reflection from sun	Comparable to a C-54 at 10 000'
11	Descended edgewise, stopped at 4,000' and assumed horizontal position. Proceeded in horizontal flight for 15 seconds, stopped again, then disappeared	Not stated	Not stated
12	None reported	Not stated	Not stated
13	None reported	Of light-reflecting nature	Apparent depth of a P-51
14	None reported	Phosphorous color	Not stated
15	None reported	Silvery	Same span as a C-54 at 10,000'
16	Followed contours of mountains five miles away from observers	Resembled a grayish balloon	Approx 10' in diameter

Report	Shape	Sound	Trail	Weather
1	No definite shape could be determined	None	None	CAVU
2				
3	Irregular, round, Did not appear particularly disc-shaped	None	None	Not stated
4				
5	None stated, seemed like a bright light	None	None	Clear moonlight
6	No details other than that shape was uniform with no protuberances	None	Possible vapor trails	CAVU
7				

Report	Shape	Sound	Trail	Weather
8	None definite, but seemed flat on base with the top slightly rough in contour	None	None	CAVU
9	Round, disc-shaped	None	None	CAVU
10	No shape could be distinguished	None	None	Sunny
11	Not stated, but report refers to "saucer" several times	None	None	CAVU
12	Same as Report No 11	None	None	CAVU
13	Flat object, of light-reflecting nature which appeared to be without vertical fin or any visible wings	None	None	Not stated
14	Egg-shaped, or like barrel head	None	None	CAVU
15	Circular in shape, like wagon wheel	None	Bluish black trail approx 15 mi long	Clear with scattered cumulus at 8 to 10,000'
16	Resembled balloon	None	None	Not stated

Report	Manner of Disappearance	Remarks
1	Climbed very fast and out of sight	No definite shape could be determined and even with the aid of 4 to 6 power binoculars object could not be brought into focus
2		
3	Obscured by a cloud bank	From letter this observer wrote, it is obvious he is a well-educated person Seeks no publicity
4		
5	Lost in brilliancy of the moon	Observers (2 rated, 2 air intell) phoned Field Ops to ascertain no scheduled experimental a/c were in vicinity Sky chart attached to report? Observer is Admin Asst in the Rocket Sond Sect of NRL Two other "scientists", and wife of one, were in party and made same observation
6		
7		
8	Cannot explain, except that reflection angle may have changed abruptly	Observers were Pilot, Co-Pilot, of scheduled UAL DC-3 Stewardess also saw objects Suggest reading of very detailed statements
9	Don't know whether they put on a tremendous burst of speed, or disintegrated However, they did disappear into sunset	When first sighting object near horizon, observer looked at chart in his lap to check position When he looked out window again, object was off his left wing at 11 o'clock
	Unexplained	

Report	Manner of Disappearance	Remarks
10	Disappeared at an angle of about 30° above the earth's surface	Rolled from side to side 3 times in its path across the sky Sun reflected from top side, but never from underside, even when turning
11	Unexplained	None
12	Unexplained	None
13	Pilot (at 300 MPH) attempted to keep object in sight, but unable to do so	Observer contacted bases in area w[ich?] reported no a/c in air at time
14	Unexplained	First 4 discs flying line-a-trail
15	Unexplained	Seemed to cut clouds open as it passed thru Trail was like beam seen after a high-powered landing light is switched off
16	Not stated	Object was observed paralleling the course of a C-47 then landing

From detailed study of reports selected for their impression of veracity and reliability, several conclusions have been formed

- (a) This "flying saucer" situation is not all imaginary or seeing too much in some natural phenomenon Something is really flying around
- (b) Lack of topside inquiries, when compared to the prompt and demanding inquiries that have originated topside upon former events, give more than ordinary weight to the possibility that this is a domestic project, about which the President, etc know
- (c) Whatever the objects are, this much can be said of their physical appearance
 - 1 The surface of these objects is metallic, indicating a metallic skin, at least
 - 2 When a trail is observed, it is lightly colored, a Blue-Brown haze, that is similar to a rocket engine's exhaust Contrary to a rocket of the solid type, one observation indicates that the fuel may be throttled which would indicate a liquid rocket engine
 - 3 As to shape, all observations statethat the object is circular or at least elliptical, flat on the bottom and slightly domed on the top The size estimates place it somewhere near the size of a C-54 or a Constellation
 - 4 Some reports describe two tabs, located at the rear and symmetrical about the axis of flight motion
 - 5 Flights have been reported, from three to nine of them, flying good formation on each other, with speeds always above 300 knots
 - 6 The discs oscillate laterally while flying along, which could be snaking

APPENDIX 2
MAJ GEN. CABELL PRESSURES PROJECT SIGN

Department of the Air Force
Headquarters United States Air Force
Washington

3 Nov 1948

SUBJECT Flying Object Incidents in the United States
TO Commanding General, Air Materiel Command
 Wright-Patterson Air Force Base
 Dayton, Ohio

1 By letter dated 30 December 1947 from the Director of Research and Development, Headquarters USAF, your Headquarters was required to establish Project "SIGN"

2 The conclusion appears inescapable that some type of flying object has been observed Identification and the origin of these objects is not discernible to this Headquarters. It is imperative, therefore, that efforts to determine whether these objects are of domestic or foreign origin must be increased until conclusive evidence is obtained. The needs of national defense require such evidence in order that appropriate countermeasures may be taken.

3 In addition to the imperative need for evidence to permit countermeasures, is the necessity of informing the public as to the status of the problem. To date there has been too little data to present to the public. The press, however, is about to take it into its own hands and demand to be told what we do or do not know about the situation. Silence on our part will not long be acceptable.

4 Request immediate information as to your conclusions to date and your recommendations as to the information to be given to the press. Your recommendation is requested also as to whether that information should be offered to the press or withheld until it is actively sought by the press.

BY COMMAND OF THE CHIEF OF STAFF

/sig/

C P CABELL
Major General, USAF
Director of Intelligence, Office of
Deputy Chief of Staff, Operations

APPENDIX 3
COL. MCCOY REPLIES

•Basic ltr fr Hq USAF, 3 Nov 48 to CG, AMC, "Flying Object Incidents in the United States"

1st Ind

MCIAT/ABD/amb

Hq AMC, Wright-Patterson Air Force Base, Dayton, Ohio 8 Nov 48

TO Chief of Staff, United States Air Force, Washington 25, D C , ATTN AFOIR

1 In attempting to arrive at conclusions as to the nature of unidentified flying object incidents in the United States, this Command has made a study of approximately 180 such incidents Data derived from initial reports have been supplemented by further information obtained from check lists submitted by mail, from interrogations of other field agencies, and by personal investigation by personnel of this Command in the case of incidents that seem to indicate the possibility of obtaining particularly significant information

2 The objects described fall into the following general classification groups, according to shape or physical configuration

- a Flat disc of circular or approximately circular shape
- b Torpedo or cigar shaped aircraft, with no wings or fins visible in flight
- c Spherical or balloon shaped objects
- d Balls of light with no apparent form attached

3 Some of the objects sighted have definitely been identified, upon further investigation, as weather or upper air scientific balloons of some type A great many of the round or balloon shaped objects indicated in paragraph 2c above are probably of the same nature, although in most cases, definite confirmation of that fact has been impossible to obtain

4 Some of the objects have been identified as being astro-physical in nature For example, in daylight sightings, the planet Venus has been reported as a round, silvery object at extremely high altitude Action is being taken to obtain the services of a prominent astro-physicist as a consultant, to study all of the incidents to determine whether some can be identified as meteors, planets or other manifestations of astral bodies

5 Arrangements for accomplishing a study of the psychological problems involved in this project are being made in coordination with the Aero-Medical Laboratory at this Headquarters The possibility that some of the sightings are hallucinations, optical illusions or even deliberate hoaxes has been considered

6 Although explanation of many of the incidents can be obtained from the investigations described above, there remains a certain number of reports for which no reasonable everyday explanation is available So far, no physical evidence of the existence of the unidentified sightings has been obtained Prominent scientists, including Dr Irving Langmuir of the General Electric Company, have been interviewed to determine whether they could advance any reasonable explanation for character-

istics exhibited by the objects sighted In an early interview, Dr Langmuir indicated that these incidents could be explained, but insufficient data were available at that time on which to base definite conclusions It is planned to have another interview with Dr Langmuir in the near future to review all the data now available, and it is hoped that he will be able to present some opinion as to the nature of many of the unidentified objects, particularly those described as "balls of light "

7 All information that has been made available to this Headquarters indicates that the discs, the cigar shaped objects, and the "balls of light" are not of domestic origin Engineering investigation indicates that disc or wingless aircraft could support themselves in flight by aerodynamic means It is probable that the problems of stability and control could also be solved for such aircraft However, according to current aerodynamic theory in this country, aircraft with such configurations would have relatively poor climb, altitude and range characteristics with power plants now in use

8 The possibility that the reported objects are vehicles from another planet has not been ignored However, tangible evidence to support conclusions about such a possibility are completely lacking The occurrence of incidents in relation to the approach of the earth of the planets Mercury, Venus and Mars have been plotted A periodic variation in the frequency of incidents, which appears to have some relation to the planet approach curves, is noted, but it may be purely a coincidence

9 Reference is made to "The Books of Charles Fort" with an introduction by Tiffany Thayer, published 1941, by Henry Holt & Co , New York, N Y It appears that similar phenomena have been noted and reported for the past century or more

10 In view of the above, the following conclusions are drawn

- a In the majority of cases reported, observers have actually sighted some type of flying object which they cannot classify as an aircraft within the limits of their personal experience
- b There is as yet no conclusive proof that unidentified flying objects, other than those which are known to be balloons, are real aircraft
- c Although it is obvious that some types of flying objects have been sighted, the exact nature of those objects cannot be established until physical evidence, such as that which would result from a crash, has been obtained

11 It is not considered advisable to present to the press information on those objects which we cannot yet identify or about which we cannot present any reasonable conclusions In the event that they insist on some kind of a statement, it is suggested that they be informed that many of the objects sighted have been identified as weather balloons or astral bodies, and that investigation is being pursued to determine reasonable explanations for the others

12 A report, summarizing the results obtained from analysis of the data and a technical investigation of the engineering aspects of the objects described, is nearly complete, and a copy will be forwarded to your Headquarters in the near future

FOR THE COMMANDING GENERAL

H M McCOY, Colonel, USAF
Chief, Intelligence Department

EVALUATING DEGREES OF ANXIETY AND PERCEPTIONS IN A GROUP OF ABDUCTION EXPERIENCERS

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ABSTRACT Twenty self-identified alien-experiencer subjects were administered a form of the Taylor Manifest Anxiety Scale and a questionnaire on various perceptions associated with their abduction experience(s). Experiencers evinced significant degrees of anxiety based on normative data in the test and also demonstrated significantly greater anxiety than a control group. Results were interpreted to offer support to studies that find anxiety-related problems in abductees. Experiencers were also questioned about such perceptual nuances as whether or not they felt special to have been chosen for abduction by either benevolent or malevolent entities and if the experience was seen as tantamount to rape. Mean scores suggested ambivalence regarding such appraisals.

In spite of increasing scientific and empirical exploration of the alien abduction phenomenon/experience, uncertainty and debate persist regarding the true meaning of this enigma. Theoretical explanations for the putative involuntary capture of humans by some kind of superior life form(s) have ranged from the neurological (e.g., temporal lobe epilepsy [Persinger & Makarec, 1987]) to the psychological (e.g., an expression of masochism [Newman & Baumeister, 1996]) and suggestions that abductees (and researchers) may be disingenuous (Klass, 1988). Disparate conclusions have even been drawn by those who are more accepting of this as a real experience (e.g., Talbot [1991] proffers an extradimensional rather than an extraterrestrial genesis for the aliens).

The good news (especially for experiencers) is that the mental-health and psychiatric communities appear to be viewing abduction symptoms more seriously. For example, Appelle (1995/1996, p. 64) in his extensive analysis of the literature concludes that "psychopathology does not exist to any greater degree in the experiencer population than it does in the general population." And, while Kingsbury suggests a psychological explanation for the abduction syndrome, he nevertheless concludes that

Believers and skeptics generally agree on the following points: 1) the vast majority of people who report abductions are sincere, 2) these people are rarely psychotic, and neither psychological tests nor psychiatric examinations indicate that they are suffering from severe psychopathology, 3) one exception is that some alleged victims of alien

kidnapping appear to have symptoms of post-traumatic stress disorder (PTSD), the psychiatric disorder that results from the impact of an overwhelming event outside the ordinary range of human experience [Kingsbury, 1994, p 8]

Similarly, in his review of this topic Basterfield (1994) quotes several social scientists and practitioners as linking PTSD and abduction experiences¹ And Powers (1994) reported that 45% of abductees evaluated demonstrated characteristics of PTSD (and 70% psychologically dissociative characteristics) on an objective personality inventory (MMPI)

However, a reading of the *Diagnostic and Statistical Manual of Mental Disorders DSM IV* (American Psychiatric Association, 1994) finds virtually no reference to the suitability of a PTSD diagnosis for cases of continued or repeated trauma. This is in part why some abduction researchers have posited a descriptive diagnostic term of postabduction syndrome (PAS), as the behavioral symptoms exhibited by experiencers are "generated not only by past experiences but by ongoing events as well" (Jacobs, 1992, p 246)

But, as author C D B Bryan (1995) pointed out in his report on the Abduction Study Conference at M I T in 1992, not all UFO researchers are convinced that experiencers are affected by either PTSD or PAS. For example, some experiencers may not perceive the aliens as malevolent, evil, or otherwise motivated by ignoble intentions. Perhaps such obverse views are best depicted by the thematic flavor found in two of the more well-known and popular books on the subject *Secret Life First-hand Accounts of UFO Abductions* by David Jacobs (1992), and *Abduction Human Encounters with Aliens* by John Mack (1994). While Jacobs's abductees seem to focus more on the traumatic, physically violative component of the abduction experience, Mack's clients, though also reporting trauma, seem to place a strong emphasis on personal transformation and consciousness raising. Similarly, Jacobs concludes his book with such descriptive terms as "invasion," while Mack speaks of the "evolution of [human] consciousness"

Further, as detailed by Rodeghier and colleagues, a wide range of individual differences occur within the range and scope of human emotions. Thus, not all women who are raped, for instance, will exhibit full-blown symptomatology of PTSD. Similarly, "even if abductions are real events, only a subgroup of abductees is liable to suffer from severe depression, phobias, or PTSD" (Rodeghier et al , 1991, p 81) Nevertheless, PTSD characteristics have been reported in abduction experiencers, and both Jacobs and Mack reference abductee anxiety (an important component of PTSD) in their respective books

¹ An area of some debate among ufologists and others pertains to whether the most appropriate descriptive term for those individuals purporting to have one or more abduction experience(s) should be "experiencer" or "abductee." (Some posit that the latter term connotes an unequivocal belief in extraterrestrial contact.) Unless grammatically redundant, this article uses "experiencer." The author does not presume or conclude that sentient extraterrestrial entities are interacting with humans.

However, neither the traumas that may portend PTSD, nor anxiety are necessarily all-encompassing unidimensional concepts. For example, Terr (1981) distinguished between what she referred to as "short-term Type I" and "prolonged Type II" traumatic events. The former (Type I) stressors tend to be more isolated, sudden, and devastating events of limited duration (e.g., rape, natural disasters, or car accidents). Such occurrences may produce more classic PTSD symptoms (e.g., intrusive ideations, avoidance), as well as vivid and detailed memories of the incident at hand. Type II traumas are sustained, anticipated, and prolonged traumatic events, where memories are generally fuzzy or spotty (in part because of dissociation). Victims usually feel helpless to prevent such ordeals, which may include, for example, physical or sexual abuse, being held hostage, etc. Both Type I and Type II traumas may produce a variety of psychological problems, including PTSD (Meichenbaum, 1994). While no known research has specifically linked Type I or II trauma with the abduction phenomenon, the typical pattern of these putative experiences would appear to be especially well-matched with Type II scenarios. For example, both Mack and Jacobs describe serial-like recurring "abductions" where the victims feel as though they possess no means of resistance.

With respect to typologies of anxiety, psychologists have distinguished between state and trait anxiety. State anxiety is seen as momentary or situationally based, although its manifestation may vary temporally. Trait anxiety reflects a more pervasive, global, and stable expression of overall anxiety (Endler & Edwards, 1982). While the DSM-IV does not specifically reference state or trait anxiety, it does contain a broad nosological category of "Anxiety Disorders" (including PTSD). In extrapolating the concepts of state and trait anxiety to the various anxiety diagnoses in the DSM-IV, characteristics of the relatively circumscribed state anxiety would apply to such disorders as phobias, while the more ubiquitous trait anxiety parallels generalized anxiety states, such as Generalized Anxiety Disorder (GAD). GAD is, by definition, a chronic condition that may persist throughout one's lifetime (Kaplan & Saddock, 1998). These patients present with pervasive levels of free-floating anxiety, apprehension, fatigue, irritability, sleeping problems, muscle tension, and autonomic hyperactivity (e.g., shortness of breath, gastrointestinal complaints, palpitations, and excessive sweating).

The primary purpose of this present study is to investigate the nature and extent of trauma and anxiety in a group of abduction experiencers. However, its focus is on the degree of trait anxiety extant in the subjects at hand. While no known study has examined either state or trait anxiety relative to the experiencer population, the finding of PTSD in such individuals is clearly more consistent with state rather than trait behavioral correlates. However, much of the abduction literature references experiencer beliefs and perceptions of recurring and repeated abduction-type episodes without a precise degree of predictability (i.e., the abduction event is likely to happen again, but the abductee is unable to predict when it will occur, such as may be found in Type II traumas). Given such a perception/belief, and assuming that the event in question is viewed in a deleterious fashion (as evidenced, for example, by

the prevalence of PTSD in abduction experiencers), a pervasive sense of apprehension (i.e., trait anxiety) ought well occur (although it could theoretically be accompanied by state anxiety [Endler & Edwards, 1982]) It is therefore predicted that the sample of experiencers selected for this study will produce significantly higher scores on a measure of trait anxiety than a comparison control group

In addition to exploring anxiety-related concerns, this study also evaluates several pertinent ancillary issues, including belief in the extraterrestrial hypothesis for the origin of the aliens, experiencer perceptions of the perpetrators, and various mental-health treatment matters Other demographic information, such as the occupations of the experiencers, are also presented

METHODOLOGY

(a) Subjects Experiencers and Controls

Twenty experiencer subjects were included in the study These adult men and women attended an all-day education-and-support conference sponsored by the Abductee Resource Workshop (ARW) and the Fund for UFO Research (FUFOR) in suburban Washington, D C The advertised theme of the conference was "Moving on A workshop for abductees and their friends and families," and included several speakers, including Budd Hopkins The cost was \$20 per party, and invitations were sent to experiencers known to the ARW and FUFOR, as well as to some UFO researchers While the conference was by invitation only to confirmed abductees (those known to ARW/FUFOR), experiencers were encouraged to bring family or friends, and some of the attendees were self-identified as abductees Over 100 invitations were sent, and a total of 80 people preregistered (not all experiencers) While no head count of attendees occurred, it is estimated that about 100 people came to the conference, about 30 of whom were experiencers (Green, 1998)

The author, who was one of the speakers at the workshop, announced that a study was being done that "further explored the abduction phenomenon," and asked experiencers (only) to complete a questionnaire situated on a nearby table and leave it in a receptacle located within the conference room The announcement was made at the beginning of the conference, before lunch, and prior to the last speaker/presentation Subject confidentiality was assured It was from this pool of 25 completed questionnaires that the final 20 subjects (responses) were chosen

A comparison control group of 26 adult introductory psychology students enrolled in a course taught by this author at a nearby community college was also included in this study Students were told that they were being "afforded an opportunity to participate in a 'real' psychological study, but participation was not a course requirement" (All but one student participated)

(b) Instrument /Questionnaire

In order to evaluate the degree of anxiety extant in subjects, a form of the Taylor Manifest Anxiety Scale (MAS) (1953) was employed The often-utilized MAS, which

derived its statements from the equally reputable Minnesota Multiphasic Personality Inventory, stimulated considerable research in anxiety during the 1950s, and was partly responsible for a dramatic increase in empirical investigations of anxiety during that time (Endler & Edwards, 1982) The revised version of the MAS employed in this present study was designed by Richard Suinn (1968), who shortened the original 50-item measurement to 38 true-false items However, Suinn's scale is specifically designed to assess trait anxiety (i.e., a proclivity to experience anxiety in various situations) A multitude of studies verifying the validity of the MAS have been performed, and it has been demonstrated that the Suinn version did not appreciably decrease the scale's reliability and validity (Weiten, 1994)

Representative examples (Weiten, 1994) of some of the domains/statements on the MAS include

- I worry quite a bit over possible misfortunes
- I feel anxiety about something or someone almost all the time
- I have a great deal of stomach trouble
- I sweat very easily even on cool days
- I do not tire quickly
- I hardly ever notice my heart pounding, and I am seldom short of breath
- I have diarrhea once a month or more
- I find it hard to keep my mind on a task or a job

The presented instructions read as follows

The statements below inquire about your behavior and emotions Consider each statement carefully Then indicate whether the statement is generally true or false for you Record your responses (true or false) in the spaces provided

The anxiety scale was actually presented on the reverse side of a research questionnaire (designed by the author) reproduced below (Figure 1)

Figure 1 Research Questionnaire

The purpose of this brief questionnaire is to obtain additional information about the "abduction phenomenon" If you have reason to believe/suspect that you may have had some type of "unusual personal experience" (UPE) relating to what has become known as "alien abduction," you are asked to spend just a few minutes to respond to the questions below AND ON THE BACK of this page A box or receptacle has been situated for you to submit this COMPLETELY ANONYMOUS questionnaire If you are interested in receiving more detailed information about the study or its "results," do not hesitate to call Dr Resta [number given] Your cooperation is most appreciated

Figure 1 (continued)

Circle the most appropriate number with the sentences below.

- 1) Strongly Agree, 2) Agree, 3) Unsure, 4) Disagree, 5) Strongly Disagree

I have had a UPE or some type of "abduction" experience

1 2 3 4 5

I believe that the "perpetrators" of the "abduction" were/are extraterrestrial in origin

1 2 3 4 5

I feel "special" or fortunate to have been "chosen" by the perpetrators

1 2 3 4 5

I believe that the "aliens" (or whatever you choose to call them) are basically well-meaning, benevolent, and good

1 2 3 4 5

I view my "abduction" experience(s) as being similar to rape.

1 2 3 4 5

I would estimate that I have had about 15 abduction experiences.

Your Sex _____ Age _____ Occupation _____

suspicious of being "abducted"? Yes No

If Yes, are you "satisfied" with your treatment? Yes No

If Yes, are you satisfied with your treatment?

Are you presently prescribed any psychiatric medication? Yes No
If yes, please specify:

If yes, which one(s)?

Do you recall ever seeing a UFO? Yes No Unsure

(c) *Procedure*

Subsequent to the ARW conference the experimenter questionnaires and anxiety scales were reviewed. A total of 25 papers were returned, however, only those respondents circling a 1 or 2 (i.e., "strongly agree" or "agree" that abduction experience(s) occurred) were chosen for analyses (producing 20 protocols). Within one month of the ARW conference, data on the control group were collected. Those desiring to engage in the research were given the same revised Taylor Manifest Anxiety Scale described above, however, the only other information they were asked to provide were their gender and a yes-or-no response to the following two questions "Have you ever seen a mental health professional?" and "Are you presently prescribed any psychiatric medication?"

Student responses were anonymous, however, they were each given a coded identification number unknown to the instructor/author. After the anxiety scale and ques-

tions were collected, the students were informed of the actual purpose and prediction of the study and invited to consult with the instructor if they had any questions or concerns. Additionally, in order to obviate cross-sample contamination, students were instructed to "drop a note in the instructor's mailbox if they believe that they may have ever had an experience reminiscent of the 'abduction experience'" (which was described and discussed during the post-test administration explanation).

RESULTS

It was predicted that experiencers would produce elevated scores on a revised version of the Taylor Manifest Anxiety Scale. The scale norms include a "high score" range from 16 to 38, and an "intermediate score" of 6 to 15 (Weiten, 1994). The 20 experiencers in the ARW group had a mean score of 19, falling in the high range for levels of anxiety ($SD = 7.07$). This further contrasts with the mean score of the 26 students in the control group of 11.23 (intermediate range of anxiety) ($SD = 5.25$). Additional analyses compared the two groups, and a statistically significant difference was found ($p = .001$). (These findings are presented in Table 1.) The two samples were almost identical with respect to gender distribution as there were 18 control females (64%), and 12 abductee females (63%), with one subject abstaining from identifying gender.

Table 1. A Comparison of Experiencer and Student Controls on a revised Taylor Manifest Anxiety Test

Group	Number	SD	Mean Anxiety Score	<i>t</i>	<i>p</i>
Experiencers	20	7.07	19.00		
Students	26	5.25	11.23	4.37	.001

There is a range of 30 in MAS scores (31 - 1) among the experiencers, and 19 (21 - 2) in the control subjects. Only 5 of the students scored in the high range (16-38), while 14 experiencers produced high scores. Thus, 70% of the experiencer group produced high anxiety scores, compared with 19% of the students. However, no mean differences of all subjects scoring in the high range were found on a supplemental Mann-Whitney U test (Table 2), and experiencers who had received mental-health services produced virtually the same high average score as those who did not (22.7 versus 22). Additionally, there were no significant differences in the experiencer subjects in either gender and degrees of anxiety, or age and anxiety. (With respect to the latter, all experiencers in the study listed their ages in the 30s or 40s, in a range of 34 to 49 years of age.)

Table 2. "High Score" Comparisons of Experiencer and Student Controls

Group	Number	SD	Mean Anxiety Score	p
Experiencers	14	16.68	22.6	NS ($p > .05$)
Students	5	3.35	19.4	

While the primary purpose of this study was to examine degrees of anxiety in experiencers, other areas of investigation were also pursued. These included the extraterrestrial hypothesis (i.e., whether experiencers believed their perpetrators were of extraterrestrial origin), the degree to which experiencers may feel special or fortunate to have been chosen for abduction, the extent to which abduction subjects may view their experience(s) as being similar to rape, and whether they perceived the perpetrators as being well-meaning or good. These questions were examined with items on a response scale of 1 to 5, with 3 representing an intermediate or more neutral point in the scale (i.e., unsure) (See Figure 1).

With respect to the extraterrestrial issue, experiencer responses were just about evenly divided across the first three options, with 7 respondents answering that they "strongly agree" with the presented statement, 6 indicating "agree," and 7 answering "unsure." Thus, none of the experiencers disagreed with the statement, however, the questionnaire did not operationalize the term "extraterrestrial" or compare it with other possibilities (e.g., extradimensional).

Regarding the three items relating to feeling special—believing the perpetrators to be good, and perceiving the abduction experience as similar to rape—mean scores were 3.1, 3.12, and 3.3 respectively. Thus, subjects tended to respond in the unsure or neutral category (i.e., 3). Table 3 illustrates specific response patterns of experiencer subjects. (For purposes of brevity, the terms "chosen," "good," and "rape" are used to denote the three question statements.)

Three separate analyses examining the relationship between degree of anxiety and the three attitudes/perceptions were completed. These calculations included statistical considerations for exact probabilities in order to avoid the problem of small ex-

Table 3. Abductee Perceptions/Beliefs of Their Abduction Experience(s)

Categorical Response Frequency	Experiencer Perception		
	Chosen	Good	Rape
1 strongly agree	2	1	1
2 agree	3	4	5
3 unsure	9	8	4
4 disagree	3	4	7
5 strongly disagree	3	2	3
	20	19*	20

* item left blank by one respondent

pected cell frequencies. No relationship between anxiety and the three attitudes/perceptions was found. Parenthetically, with respect to the rape item, mean scores for both male and female experiencers hovered around the unsure option—2.83 versus 3.38 for men and women, respectively.

Experiencer responses on the item which asked them to estimate their number of abduction experiences are not really amenable to analyses. Many of the subjects left this item blank, placed a question mark in the appropriate space, or wrote "unknown." Similarly, one respondent wrote "lots," while another offered "all my life." The numerical range for those specifying a number was 1 to 200.

Some subjects also left the item inquiring about occupation blank. However, the following identifies the stated occupation of those experiencer subjects who did respond:

teacher (2)	nurse (2)	computers (2)
military (2)	artist	intelligence analyst
policy analyst	sales	
occupational therapist	"healer"	

Six of the experiencers admitted to seeing a mental-health professional (MHP) "before [they] became aware/suspicious of being abducted," while 11 were seen by an MHP "after [their abduction] experience(s)." Seven of these 11 had not seen an MHP in the past. On the follow-up question relating to satisfaction with mental-health treatment, five subjects indicated "no," one "yes," another wrote "pretty much," while the last of the 7 left this item blank. (Six of the students in the control group admitted seeing an MHP.) Three of the 20 experiencer subjects admitted to taking psychiatric medication, while only one of the control subjects responded in the affirmative to this item. No significant statistical relationship between anxiety and participation in mental-health care or satisfaction with same was demonstrated for experiencer subjects.

Seventeen of the experiencers checked the "yes" line on the question which asked if they "recall[ed] ever seeing a UFO," while two responded "no," and one "unsure." No statistical significance was found for anxiety and UFO sighting. None of the control students communicated ever having an abduction-type experience.

DISCUSSION

Evidence from this study supports the prediction that individuals identifying themselves as alien abductees experience significant degrees of trait anxiety, indicating the presence of rather pervasive and enduring degrees of anxiety, which may be manifested in a wide variety of situations. Not only did 70% of the experiencer subjects exhibit elevated levels of anxiety, they were also found to be significantly more anxious than a comparison group of controls (where only 19% produced high anxiety scores). While these findings do not (and should not) imply that the subjects at hand did, in fact, have encounters with sentient life forms, they arguably offer

evidence that something has happened to these subjects. And, while it is ultimately impossible to definitively identify what that *something* is, the nature and extent of the anxiety typology extant (i.e., trait anxiety) may well have developed in the aftermath of what has been referred to as Type II stressors (which tend to be repeated, anticipated, and prolonged). Moreover, the descriptive nature of such stressors and anxiety is quite consistent with the alien-abduction experience as presented in the UFO literature. Thus, continued, recurring, and forced abductions (traumas) where the experiencer is or feels powerless to control, produce diffuse and pervasive levels of (trait) anxiety.

The construct of trait anxiety, as well as how it is operationalized in this study (i.e., a revised version of the Taylor Manifest Anxiety Scale) is also at least partly congruent with the DSM-IV nosological category of Generalized Anxiety Disorder (GAD). Various components of GAD are tapped by many of the questions on the MAS. For example, excessive and free-floating levels of anxiety may be detected in the statements "I feel anxiety about something or someone almost all the time," "I worry quite a bit over possible misfortunes," and "I find it hard to keep my mind on a task or job." Accompanying somatic problems may be seen in such statements as "I have diarrhea once a month or more" and "I have a great deal of stomach trouble." Autonomic hyperactivity may be described in the statement "I hardly ever notice my heart pounding," and "I am seldom short of breath."

Assuming a connection between the experiencers evaluated in this study and the abduction phenomenon in general, a pertinent question would relate to the etiology of GAD. Unfortunately, the cause of GAD is unknown, but such psychosocial factors as individual's perceptions of their own inability to cope and/or unresolved unconscious conflicts have been implicated (Kaplan & Sadock, 1998). Such causative predispositions could well be consistent with an abduction experience where experiencers may believe themselves impotent, and when the previous abductions have been removed from conscious memory.

If experiencers possess undiagnosed and untreated GAD, this would not necessarily obviate a coinciding PTSD diagnosis, as both may occur in some individuals (Meichenbaum, 1994). Additionally, many such patients may also be diagnosed with comorbid panic disorder or depression, in fact as many as 90% of GAD patients may have another psychiatric problem, though only about one-third actually seek treatment (Kaplin & Sadock, 1998). It is interesting and possibly significant that, in this present study, a similar percentage (30%) of the experiencers visited a mental-health professional "before they became aware/suspicious of being abducted." (In the population at large, about 40% of individuals with psychological problems do not seek professional help [Kessler, et al., 1994].)

While considerably more of the experiencer subjects evinced anxiety as compared to controls, the degree of such variation and relatively low average scores (in the high range) were such as to yield no statistical significance (as compared to controls with high anxiety [Table 2]). Thus the magnitude of the difference between the two groups and overall support for the study hypothesis is somewhat compromised. It is

also acknowledged that factors unrelated to any abduction experience (e.g., depression, childhood trauma) may have been responsible for the apparent anxiety in this group. Similarly, the mere belief that one has been victimized by aliens from another planet or dimension (regardless of the veridicality of such a perception) may in and of itself portend anxiety. Nevertheless, the impressive and consistent qualitative and quantitative differences between the groups in question are at least thought-provoking and compelling. It should also be remembered that many of the experiencer subjects participated in mental-health treatment. Such psychiatric interventions (e.g., therapy) would be expected to reduce or otherwise influence various anxiety-related characteristics (though experiencers manifesting high levels of anxiety and who also received treatment produced a virtually identical high average score as those who did not receive treatment).

Moving from experimental to clinical domains, it is posited that, regardless of any known or suspected coexisting psychological problem, individuals purporting or found (e.g., via hypnosis) to exhibit what has been called "alien abduction syndrome" may well be struggling with emotional turmoil and psychological strain. It is therefore incumbent upon anyone encountering such individuals—particularly those in the helping professions—to respond to them as they would any other client or patient (i.e., with a nonjudgmental, empathetic attitude). To do otherwise could exacerbate whatever difficulty or anxiety already exist.

Similarly, for those who have an impression (knee-jerk or otherwise), that experiencers are invariably uneducated or naive, the occupational status of those participating in this study should dispel any such notions. Nurses, members of the military, and teachers were all represented in the abduction sample. While anyone of any occupation may certainly possess various forms of psychopathology (including those encompassing anxiety conditions), be fooled by relatively common illusory events (e.g., hypnagogic hallucinations), or even be disingenuous, the careers pursued by the abductees in this present sample may nevertheless surprise many who frown upon the very notion of experiencer credibility.

Contrariwise, for ufologists and mental health professionals who are open to the possibility of external source (extraterrestrial or extradimensional) life intrusions, it is reiterated that statistical significance does not equal alien abduction. Borrowing from statistical concepts relating to decision-making, clinicians/researchers should exercise extreme caution before concluding that someone has endured a legitimate abduction experience, or risk making a Type I error (i.e., incorrectly concluding significance or abduction). Given this eventuality, however, the alternative error must also be considered (i.e., a Type II error of falsely denying significance or abduction). Abduction or not, it is notable that over half of the experiencers receiving psychological/psychiatric treatment in this study were dissatisfied with same.

Notwithstanding the question of abduction veridicality, it is interesting that the experiencers in this study seem to reflect the same degree of uncertainty, ambivalence, and confusion found in the UFO literature. Thus they produced mean scores around the unsure category on the three perceptual domains included on the ques-

tionnaire, suggesting equivocal attitudes about whether or not they are special or fortunate to have been selected for abduction, the aliens are benevolent, and the degree to which they see their abduction experience as being similar to rape. Such indecisiveness is perhaps best exemplified by the lack of statistical significance between anxiety and any of the three attitudes (in spite of composite significance in the study). Of course, with such a small sample (20 subjects), non-median scores (i.e., 1, 2, 4, or 5) assume more importance and value. It is especially noteworthy that most of the subjects did not view their abduction(s) as being tantamount to rape. Moreover, only one subject (a male) circled the first option (i.e., "strongly agree" with the rape comparison) and this same individual circled the third option (i.e., unsure) in response to the other two questionnaire items. (Due to the nature of score distributions and the small sample, individual subject responses have not been included in the results section above.) The pattern evidenced, then, suggests that the experiencers at the ARW conference did not view their encounters as did those experiencers evaluated by David Jacobs (in spite of prevailing anxiety). Thus, a rather confounded experimental and clinical picture about an equally bewildering phenomenon has surfaced in this study.

There did seem to be a greater degree of agreement on the question of whether the perpetrators of the perceived abductions originated from an extraterrestrial origin, as 65% of the experiencers responded in the affirmative on this item. However, as mentioned, no real definition of extraterrestrial was delineated in the questionnaire, and no other response alternative was offered. Moreover, as many subjects circled the unsure option on this item as circled "strongly agree." Nevertheless, it is notable that 85% of the experiencers recalled seeing a UFO.

LIMITATIONS AND CONCLUDING COMMENTARY

In closing, the author acknowledges the existence of limitations with respect to this research. Perhaps the most significant and important methodological issue or problem relates to the sample of experiencers—always an area of controversy as the very idea that human beings have been captured or violated by unearthly entities is considered untenable by many in mainstream psychiatry, psychology, and clinical social work. The practice framework of such mental-health professionals seems to be that humans could not possibly be abducted by aliens, therefore they are not, therefore they must have some other kind of psychological problem (e.g., temporal-lobe anomalies). (A comparable equation may also be true with respect to the broader question of UFOs, that is, they can't be from another planet, therefore they must be natural phenomena, experimental aircraft, etc.)

In any case, the self-identified abductees in this study were not individually evaluated, and the questionnaire did not inquire about preexisting psychological or organic problems or traumas (which could themselves account for anxiety states). Similarly, as mentioned above, the belief that one has been abducted and/or reading (or even simply hearing) about abduction-type encounters could certainly evoke anxiety.

ety in any given person. It is therefore imperative that any clinician encountering an abduction experiencer conduct a complete psychological/psychiatric evaluation, with due consideration of full differential diagnoses or possibilities.

Related-study limitations pertain to questions about the attendees at the ARW conference. In addition to inherent methodological restrictions because of the small size of the sample, there is unfortunately no way of gauging the sincerity of these men and women, or to adequately understand how these individuals may differ from expenencers who don't participate in such workshops. Perhaps experiencers who frequent various UFO-related conferences have augmented levels of anxiety because of what they might hear or see at these programs. Or, contrariwise, experiencers who eschew such presentations may do so because of psychological fragility from anxiety-related difficulties. Consequently, anxiety may actually be overestimated or underestimated in experiencer populations.

Nevertheless, the reader is reminded that attendance at the ARW conference in question was carefully scrutinized, and that most of the experiencers were "known abductees" (to ARW coordinators). Additionally, the conference was cosponsored by the Fund for UFO Research, a scientific-minded UFO organization that treats UFO and abduction phenomena in a most sober and responsible manner. And, ARW is a precursor of the "Bridges" experiencer support group, which was praised and applauded by the highly respected veteran ufologist, Richard Hall (1998) in a recent edition of *UFO Magazine and Phenomena Report*. Moreover, respondents who were unsure as to whether or not they had actually had some type of abduction experience were excluded from study analysis.

It is also acknowledged that the measure employed to assess anxiety (a form of the Taylor Manifest Anxiety Scale) is no longer considered to be the state of the art in terms of evaluating degrees of anxiety. Additionally, the scale is designed to evaluate the degree of trait anxiety, and not to diagnose Generalized Anxiety Disorder. Thus the suggestion that the experiencers participating in this research could possess GAD is predicated on a logical extrapolation of the concepts and instrument at hand, and not on precise DSM-IV diagnostic criteria. A specific evaluation for GAD, per se, in experiencer populations is a recommended direction for future study. Researchers interested in further investigation into trait-state dimensions, and other tests for same are referred to Goldberger & Breznitz (1982). The modified Taylor scale was chosen for this present study because of its reputation (e.g., reliability/validity), widespread use, brevity, and amenability to a group-testing format.

In spite of the limitations that accompany this investigation, it is nevertheless a valuable and beneficial addition to an extraordinarily complex domain of study, which in many respects is still in its infancy. Virtually any responsible, empirical contribution where primary research is emphasized is seen as being useful, relative to understanding the enigma of the alien-abduction phenomenon. Simply ignoring additional evidence of pronounced anxiety in experiencer populations (as some in the mental-health community are prone to do) is both foolhardy and unscientific.

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ABDUCTIONS UNDER FIRE: A REVIEW OF RECENT ABDUCTION LITERATURE

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Skeptics are on the march as never before against UFO abduction. They have manifested their growing combative spirit in three new books that have appeared over the past two years—works by Peter Brookesmith, Terry Matheson, and Kevin D. Randle, Russ Estes, and William P. Cone. Gone are the days when an assault on abduction meant uninformed writers flaunting the depths of their misunderstanding. These writers know the terrain and attack with a broad understanding of the evidence pro and con. They have scouted the weaknesses in proponents' arguments and open fire on a broad front, confident that they have found a strategy to win the fight for a conventional solution. The authors of the third book may even succeed.

THE BOOKS

Peter Brookesmith, *Alien Abductions* London Ward Lock, 1998 176 pp

Brookesmith's book appeals to the broadest audience. Its large format, ample illustrations, and vignettes of abductees telling their personal stories interspersed throughout the text extend a friendly invitation to readers and captivate them with the subject as he presents it. At the same time, this book is no piece of fluff. Unlike too many of his skeptical predecessors, Brookesmith has actually interviewed abductees and listened to their stories. They have faces and names for him, and he has some sense of the personal complexity underlying abduction belief, whatever its ultimate nature may be. With this appreciation in hand, he has no inclination to do a hatchet job, and in fact sees the phenomenon layered with deep personal and cultural significance. He wants to break through the entrenched polarities of the argument—the weary efforts of skeptics to reduce the phenomenon to trivial causes on one hand, the shrill proclamations of proponents that abductions are the most important happenings in history on the other—and get on with explorations of why people believe such fantastic stories. This belief is sincere and it holds an undeniable fascination. Something strange and important is going on here, not alien visitation, Brookesmith believes, but a vigorous myth of the modern age that tells us much about ourselves.

The six chapters of the book encompass an overview, critique, and interpretation of the abduction myth as Brookesmith sees it. He begins by introducing a parade of notable cases, then the proponents and their extraterrestrial perspective on these claims. The skeptics next have their inning and demolish the literalist position as a combination of hypnosis misused and cultural imagery replayed. A rebuilding begins as he looks beyond confabulations at the hands of overzealous investigators to a subset of abduction claimants with genuine strange experiences to report. He proposes that these experiences originate in hallucinations, set off either by an external stimulus like the electromagnetic energy of earthlights and power lines, or by internal influences like neurological conditions, extreme tiredness, or altered states of consciousness. Individual characteristics like a boundary-deficit personality help the experient to confuse fantasy and reality, and personal concerns or conflicts inspire psychodramas to express or resolve these problems.

Where the raw material of abduction consists of sensations, images, and ideas with no firm connection, the age-old structure of myth unifies this otherwise scattered collection into a coherent story. Mythic structure also connects abduction with comparable traditions like shamanic initiation, fairy lore, and witchcraft beliefs, traditions already resonant with emotional and symbolic significance. In this way the abduction scenario "can be interpreted as a religious fable for a godless age, a hero myth, a shamanic ritual, or the purging of a specific guilt" (p. 159). The ultimate meaning of the abduction myth may be fear of loss—of control to external powers, of cultural integrity in a changing world, as the hybridization motif suggests. In a deeper sense the myth expresses fear of ourselves—we are the aliens, separated from our better selves, spiritual roots, earth, and nature. An image of threatening Others as distorted, sickly reflections of ourselves, possessed of incomprehensible and magical technology but devoid of compassion, encapsulates the present human situation with unsettling aptness. Abductions are not literal alien visitations, nor merely examples of human error and the will to believe. These experiences belong within a middle ground of subjective reality where they have the emotional truth and symbolic timelessness of myth—a myth well attuned to the needs of the modern age, seeded with themes of redemption and rebirth within a technological guise.

Brookesmith's book wraps up abduction in a clean and symmetrical package with undeniable appeal. But is the phenomenon really so tidy? The author clips and grooms the evidence to favor his interpretations, while the less convenient evidence becomes lost in the process. Start with the cases presented in the first chapter. They demonstrate that a fair fight is not in the offing. This presumably impartial exposition slants the selection of reports to emphasize differences, pointing out the odd element however minor it may be and downplaying the similarities, even when they are numerous and striking. Sample bias remains a problem throughout the book. Whatever example serves the cause of discrediting abductions receives an airing as needed, but no attempt is apparent to carve out a representative sample and analyze it for an even-handed weighing of consistencies against differences in reports. How tight a leash the author may keep on the notion of similarity itself comes into question on p.

97, where an illustration shows a gray alien with a grid of several lines across its face. The caption reads, "Images of aliens are less consistent than 'believers' tend to maintain." Yes, the grid is unusual, but reading between the lines, everything else about the face of this gray alien is familiar in countless others, and anywhere but here the likenesses would seem to merit notice. In a final irony, the first half of the book denies that abduction stories are consistent (e.g., p. 25) while the second half seeks to explain why they are (p. 147).

No reasonable ufologist denies that some abduction reports are hoaxes or fantasies, others are honest mistakes about unsettling conventional experiences like sleep paralysis. If the task is to understand abduction, the cases to emphasize are not these explainable ones but the truly puzzling examples. A critique of abduction must wrestle with reports that truly describe abduction and challenge conventional solutions. These rules seem reasonable enough, given the difficulty of the subject and the danger of clouding out any genuine evidence with instances of confusion and error. Here those rules are broken. Individuals with odd experiences but not necessarily abductions pass in and out of the text (e.g., pp. 115, 118–119). Readers will also encounter cases of questionable reliability, such as that of Harry Joe Turner or Carlos Alberto Diaz, taken on an equal footing with reports of undoubted integrity. Brookesmith condemns ufologists for rejecting the Turner case, saying his claims are "no more outlandish than many others that ufologists have accepted without question" (p. 94). I assume he would condemn ufologists if they did not screen reports, even as he condemns them because they do. But he ignores the reasons for rejection of Turner's story, perhaps leaving readers unfamiliar with the report to believe investigators vetoed the case only because its content failed to meet a prescribed pattern. In fact, investigators unearthed evidence of erratic behavior and a reputation among his co-workers for exaggeration, and because of these external factors assigned a low probability to the claim. A broader comparison of unreliable versus reliable cases shows far more consistency of content and sequence in the latter (contrary to a claim Brookesmith repeats on p. 165), but this ugly fact could spoil a beautiful theory. Here the process of selection chooses the supportive aspects of unreliable reports and neglects the responsible efforts of UFO investigators as well as the testimony that representative samples of reports could offer.

Only proponent ideas appear in the crosshairs of critical examination. Skeptical arguments pass as indisputable facts without ever being targeted for criticism. We read of 1970s experiments with hypnotized subjects treated as if they prove that non-abductees and abductees tell identical stories. What we do not read is any acknowledgment that the experimenters' framework of questions may have provided leading guidelines, or that too little published data forecloses any independent evaluation of the supposed similarities. One aspect of the data has become public and a comparison is revealing. Each experimental subject described a different type of "alien," and while the overall range of descriptions approximates the variety of types described throughout the abduction literature, the distribution of types among the subjects in no way matches the overwhelming dominance of short humanoids among

real abductees No mention of these difficulties ripples the surface of Brookesmith's argument

Reliance on hypnosis and prospects that abduction investigators lead the witness always weigh heavily in the skeptical critique of abduction So does the occurrence of every element of the abduction story somewhere in the vast archives of mass, popular, and folk culture Hypnosis is fraught with serious danger of distortion, false memory, and confabulation, science fiction and mythology do encompass just about every imaginable abduction motif—in these assertions the critics are right From there they contrive a one-two punch to knock out any claim of abduction, however it arises If someone approaches an abduction investigator, that person must expect to find a UFO abduction Hypnosis "confirms" this suspicion when the investigator leads the witness into abduction beliefs, while any conscious memories arise second-hand from old movies or accounts of other people's abductions So goes the skeptical argument as it ensnares the claimant in a net of Catch-22s

Once again the reality is less clear-cut than the theory suggests Some elements in some abduction reports trace to a cultural influence, the "talking" eyes that Barney Hill reported being one example In this case Martin Kottmeyer has established a strong and plausible connection between an episode of the *Outer Limits* and Barney's testimony under hypnosis two weeks after the TV show aired Most allegations of cultural ties rest on thin air, with nothing to back them up but loose analogy at best At worst—and worst is the norm—skeptics resurrect images from the 1930s or plots from obscure magazines the abductees almost surely never saw, and declare that because these antecedents exist, they must be the source of the abduction story When influence becomes a testable proposition, the outcome seldom upholds this skeptical creed A case in point is the thin gray alien introduced to a mass audience in Steven Spielberg's *Close Encounters of the Third Kind* If ever a cultural influence carried the clout to stamp an image on the abduction story, this was it, but aliens drawn by abductees from the 1960s onward show the same face on the "before" as well as the "after" side of this cultural watershed

The influence coin has two sides, but it always comes up heads in this book Chapter Five regales readers with a selection of similarities to demonstrate that abduction accounts simply modernize traditions of fairy lore, witchcraft, and shamanic initiation How much of these traditions never appear in abduction reports, how many motifs contradict the comparison and favor abduction as an independent phenomenon—these aspects go unheard throughout the argument Hollywood has presented multiple plots and a profusion of aliens to entice the creative, susceptible imaginations that abductees are supposed to have In fact, Hollywood influences tally a pretty dismal score, since abductee stories reflect nothing of that variety and adhere instead to a narrow regimen of short gray humanoids and a victimization plot Where David Copperfield began life thinking that he might be the hero of his own history, thousands of abductees somehow never have that option Surely such a limitation counts as odd for an imaginative fantasy with cultural resources to borrow and personal needs to address Odd or not, this reticence deserves attention but rates nary a

mention in the book Brookesmith rightly points out that there is a "right way" to tell a story, and narrators naturally arrange their plots for suitable effect (pp 152-153) What he fails to mention is that narrators are under no obligation to fit the same content into the same structural slots time after time Creative narrators vary these assignments, abductees do not Again, here is a curiosity left unexplored

The hypnosis conundrum continues to puzzle and confuse Brookesmith's misgivings about the technique and criticisms of its usage among abduction researchers have merit, but leave hanging the question of how important hypnosis really is in shaping the story Read reports in quantity and they leave an unmistakable impression that abductees remember a great deal without hypnosis Accuse investigators of leading, but notice as well that their experimental efforts to lead the witness often meet with stubborn resistance A hint of how unpredictable the effects of hypnosis may be comes from the example of Betty Hill She dreamed of beings with large noses soon after her abduction, and this dream presumably fixed a vivid image in her mind Brookesmith suggests that she borrowed the idea from *Invaders from Mars* (p 97), and skeptics favor her dreams as the source behind Barney Hill's abduction story Both of the Hills should have expected big noses and hypnosis should have enhanced this predisposition, but what really happened? Lo and behold, the big noses disappeared and a small, flat, almost nonexistent version took their place—the same sort of nose that abducting aliens have sported ever since No one else among the many viewers of *Invaders from Mars* seems to have fallen under the influence of large noses The morals of this cautionary tale seem to be that abductees are not puppets in the hands of the investigator or bound to their conscious expectations All in all, hypnosis bears less predictable consequences than the author suggests

One of the strengths of this book is its encyclopedic attention to theories for the origin of abduction They range from alien visitation and interdimensional contact to hoax, confabulation, hallucinations, psychodramas, dream symbolism, abortion guilt, the collective unconscious, old myths made new, altered states of consciousness, and electromagnetic stimulation of the brain About the only explanation Brookesmith overlooks is satanic intervention To his credit, Brookesmith evaluates some of these proposals He rejects the hoax proposal of Philip J Klass as an explanation for the Travis Walton case, since if the logging crew contrived the abduction yarn to excuse their failure to complete a job contract on time, the boss never raised this issue in his contract renegotiations (p 94) The author recognizes the shortcomings of a collective unconscious as Jung envisioned it, and updates this idea with an intriguing suggestion that brain stimulation could lead to "certain combinations of physical sensations and basic mental imagery" (p 148), perhaps the experiential basis underlying otherworldly journeys from shamanic initiations to modern abduction accounts On the negative side, most dealings with explanatory theories remain quick and superficial While space limitations necessitate this light treatment, it leaves a shotgun impression, a sense that the author throws out these explanations in hopes of hitting the mark without taking careful aim

If the book lacked any other redeeming qualities, it would still deserve reading for

the attention it pays to the human significance of abductions Whatever else they are, they also belong to a modern myth The human uses of this phenomenon lend themselves to studies apart from considerations of its nature, but in this book the issues of truth and cultural function slip together By pages 165–166 matters of truth become irrelevant and the myth dominates Whether the abductee recalls under hypnosis or in full consciousness, the “stories come from the same mythopoetic, dream-weaving, storytelling source in all of us” No one will deny the fascination of the abduction idea, but its attractiveness begs the question of whether some difference distinguishes the mythic fiction from the alleged fact The mere participation of abduction in modern mythology or various analogies between tales of supernatural kidnap past and present cannot seal the identity of abduction reports as merely a myth If they are narratives without an experiential basis, then the argument falls into quicksand where critics have to explain how this particular fantasy differs from all others by disobeying the dynamic laws of folk narratives Brookesmith himself allows that some reports must have an experiential component, albeit a conventional or subjective one His defense of the Walton case raises the significance of multiple witnesses as affirmations of a real event I offer no resolution here, only a reminder that the abduction phenomenon manifests more complexities than Brookesmith’s scheme can handle

Despite a tendency to oversimplify that caricatures rather than characterizes the subject, Brookesmith presents a readable and attractive overview of abduction His thumb leans a bit too heavily on the scale for the book to qualify as a balanced introduction, but beginners with some sense of wariness can learn much, while veterans will find a compact summary of arguments and issues They will also be reminded that the subject yields to easy explanation only by omission of inconvenient evidence

Terry Matheson, *Alien Abductions Creating a Modern Phenomenon* Amherst, N Y Prometheus Books, 1998 317 pp

Terry Matheson limits his criticism to the scriptures that preserve and transmit the abduction faith A literary scholar, he examines the mainstays of abduction literature up to 1994—the books of John G Fuller, Raymond Fowler, Travis Walton, Ann Druffel and D Scott Rogo, Budd Hopkins, Whitley Strieber, David Jacobs, and John Mack—through the lens of rhetorical criticism Matheson’s purpose is to dissect the structure of argument these authors assemble In its bones and sinews he finds the way abduction proponents use—or misuse—evidence and reasoning to persuade their readers that abductions literally happen, extraterrestrials are responsible, and these events bode great consequence for humankind Every skeptic devotes some attention to textual criticism, and necessarily so—published accounts argue the front-stage, high-visibility case for abduction, amass favorable evidence and sway the readership to believe But where others treat these texts in passing as largely transparent sources of information, Matheson focuses on the writings themselves as art-

ful contrivances, the workshop where authors invent an artificial mystery

He takes as a premise that abductions amount to fantastic claims unsupported by outside evidence. The alleged experience leaves its only trace on the memory of abductees, and those memories reach us through investigators and ultimately through the writers of abduction books “[W]e are completely at the mercy not only of the abductees’ frequently muddled memory, but also of the innumerable decisions that authors of the ensuing narratives have made in deciding how to convey the abductees’ story to the reader” (p. 33). Those authors sell their audience fiction in the guise of fact. They tinker with the raw material by imposing personal opinions and agendas, selecting data to tell a partial truth, and ordering scattered memories into a coherent whole “Hazy or dreamlike aspects . . . are hurried over, similarities are heralded, inconsistencies ignored or minimized” (p. 213). Every historical work is a fictitious construct, to the extent that the author must organize the elements into a meaningful whole that only approximates objective reality, the event as God saw it. Abduction histories take this necessity to an extreme. Without validating evidence or the possibility of cross-examination by other scholars with access to the same facts, abduction claims stand on the story these authors tell. It is not a scientific account but a work of speculation that owes more to the author than to the abductee.

The principal books of the abduction literature share typical strategies for winning readers over to the author’s point of view. Most of these books begin with the favorable testimonial of an expert, such as Benjamin Simon, the psychiatrist in the Hill case, or J. Allen Hynek—authorities who lend respectability to the story simply by association. Their usual plea for open-mindedness pressures the reader to withhold skeptical questions and count the story true as told. In fact, the expert has no special insight into the nature of the claims and contributes nothing substantive toward validating them. The expert serves as window dressing in an effort to dazzle the reader with credentials in lieu of proof. With Dr. Simon the appeal to authority even backfired, since his comments expressed professional doubts about the literal reality of the Hill abduction.

A second tactic polishes the image of abductees as normal, trustworthy people and investigators as scrupulous and rigorous in their inquiries. In fact, the authors’ praise often oversteps their real knowledge of these people and provides a one-sided portrait at odds with the facts. Betty Andreasson offers a case in point, since her portrayal as a happily married homemaker belies serious family tensions at the time of her 1967 encounter. These tensions eventually slip into the narrative and suggest escapist fantasies as possible psychological sources for her claims. A reading of how the authors investigate abductions reveals time and again the sloppiness of their work. It is anything but rigorous, encouraging fantasy, blind to contradictions, deaf to alternative interpretations, and attentive only to the author’s agenda. David Jacobs describes his methods in detail and thereby commits to paper a litany of offenses. His on-the-job training in hypnosis abets leading the witness and confabulating fantasies, his confidence that he understands the phenomenon licenses him to reject any unorthodox elements as alien deceptions, and his scheme of events solidifies his

expectations of what will happen so that he imposes a nonexistent order on every case. The abduction investigator is scrupulous only in self-deception. In a corollary tactic, the author appeals to readers by professing initial skepticism that turns to belief over the course of the investigation, in hopes of carrying readers through a similar emotional and intellectual conversion. Of course the skeptical author is another fiction, since most abduction investigators believe in UFOs and embrace abductions from the start.

One of a writer's most valuable means of persuasion is the creation of verisimilitude. Nothing brings a story to life like realism, and abduction books brim with vivid details—homely ones about the day-to-day activities of the abductee side by side with fantastic ones depicting alien encounters—as the authors blend the ordinary and the extraordinary into a convincing, indivisible whole. They involve readers in the process of investigation, recreating the discovery of the abduction, the wonder and terror of the abductee, the coping and eventual acceptance that follow these revelations. Transcripts from hypnosis sessions often fill pages in an effort to draw readers into a “you are there” participatory role. A firm sense of cause and effect further solidifies the realistic illusion of the story. Authors of abduction books take pains to narrate a coherent, logical, and complete sequence of events, though the author creates this well-rounded account out of abductee recollections that are often fragmentary and disorganized, tentative and dreamlike.

A recurrent argument in favor of literal abduction appeals to the consistency of the reports. What consistency, Matheson asks over and over? He points out that the stories actually vary a great deal from person to person and over time. In descriptions of aliens, “there is little correspondence even when it comes to those basics where we would expect to see some agreement—the shape and size of their eyes, hands, heads, skin color, or even clothing . . .” (p. 235). Abduction accounts are rife with contradictions, with some aliens speaking in terms of time then professing to know nothing about it, with magically advanced technology like an ability to walk through walls juxtaposed with the backwardness of using humans for incubators, with abilities to carry out advanced hybridization combined with the medical clumsiness to leave scars. In a multiple-witness case like the Allagash affair, one description clashes with another until the four participants seem to recount four separate experiences. Matheson sees the abduction story evolve over the years from purely scientific work in the Hill and Walton cases to the dark invasion of the hybrids portrayed by Hopkins and Jacobs and finally to the spiritual initiation imagined by Strieber and Mack. The aliens begin as businesslike but friendly, turn cold and exploitative, then “transform from technocratic scientists to New Age gurus” (p. 268) as they bear messages and interact with humans as teachers, saviors, even blood relations.

The literal abduction stands unmasked as a fiction, its plausibility an illusion shaped from literary devices. This same fiction enjoys widespread popularity as it thrives and grows despite the opposition of reason. Matheson picks up Jung's observation that a modern myth has taken hold. Blending age-old patterns and the imagery of

popular culture, the abduction myth encompasses human needs in terms that befit a technological age "Rich in detail and replete with relevant symbols that reflect many aspects of the human predicament, the story speaks to us about our values and concerns far more effectively and authoritatively than any work of science fiction can do" (pp 275-276) Changes in the story mirror changes in public attitude toward technology A positive view of technology, like a positive view of alien visitors, has yielded to suspicion and fear as both become dehumanizing agents Abduction expresses the helplessness of people today, dramatizing their real-life entrapment in a soulless system of technology and bureaucracy by depicting humans as guinea pigs, hauled into a sterile environment for humiliating and pointless manipulation by gray, heartless entities "If ever a race of beings exemplified the negative consequences of rationality it is these eminently drab, boring, and virtually sexless creatures with their expressionless faces and emotionless ways" (pp 298-299) The aliens have no art or passion, no human qualities They simply repeat their futile routines over and over, alien yet familiar too, in fact projections of the worst side of ourselves As life forms they make poor biological sense, but they succeed wonderfully as symbols Yet even with all their negative qualities, the development of the myth invests the aliens with hope, perhaps some wisdom or power to better humanity, to help it grow out of its technocratic rut This embodiment of what is and what can be rounds out a myth with proven appeal and ample prospects for future evolution

A reader critical enough to reflect on the critic finds little to fault in Matheson's characterization of abduction books His analysis raises important points about the author as intermediary between the abductee's actual testimony and the cleaned-up version of the text He forearms the reader to recognize the author's interventions, speculations, and techniques of persuasion that masquerade as factual reporting With a keen eye for weaknesses, he asks the questions an inquiring reader ought to ask about the various abduction claims—for instance, the unmistakable Christian imagery in Betty Andreasson's otherworldly journeys or the appearance of hybridization scenes in her claims only after publication of *Intruders*, the doctor who supposedly confirmed that one young abductee became pregnant while a virgin and yet did not report this prodigy in the medical literature, or the discrepancy between John Mack's assertion that his abductees come from stable, happy family backgrounds and the fact that most of these people describe unhappiness, neglect, even abuse He reminds us that abduction writers borrow claims from one another, and these unproven allegations rise to the status of facts through no merit of their own but simply through the process of repetition Reading Matheson cures any tendency to take an abduction book at face value ever again

The same reader may also wonder if these criticisms go too far Some of them simply complain about shortcomings inevitable in every history Selection of data, point of view, and attempts to persuade readers count as faults only insofar as they violate some unattainable ideal of objectivity, and no history aside from an undigested and insipid grab-bag of facts escapes this accusation Abduction books sin not because they share the limitations of all histories, but because other histories

treat conventional phenomena while abductions are anything but conventional In Matheson's opinion they are fictions and myths without a shred of literal truth to back them up Such a premise seems to beg the question, and leaves us wondering how abductees can ever tell their stories without running afoul of the same criticisms They apply whether the story is true or false

Under the assumption that abduction books represent propaganda rather than a faulty but well-intentioned search for truth, every sentence partakes in a conspiracy to influence, even deceive Beginning the book with an expert's prologue becomes a tactic to dispose the reader toward a favorable response and nothing more These introductions serve that purpose but also another, perfectly legitimate function—they help establish credibility Why should readers place any faith in authors making such outlandish claims? Abduction writers were hardly household names when they began, and having a familiar figure introduce them reassured the reader that here was an author with some standing and integrity among ufologists anyway, not a charlatan passing off a work of deliberate fiction as fact Having an author vouch for the abductees answers a similar question We do not know them, the author does They do not come bearing three letters of recommendation and a credit rating, only the impression they make on the author If it is favorable, if they seem like sincere and normal people, if they live productive lives with typical home and job responsibilities, if they do not glow with obvious psychological quirks or have a hard time holding in their laughter, we know the abductees about as well as we can expect without extensive testing and prying Yes, what we know falls short of scientific standards, but it is better than nothing Favorable impressions influence the reader, but they are more than tricks They also add valuable background to the case

Abduction authors load their accounts with details, but what else can they do? The story lies in the details, and they answer what curious readers want to know A serious charge against investigator practices is their tendency to construct a coherent narrative out of fragmentary recollections, and certainly this issue is serious enough to deserve careful exploration My impression of the reconstruction (and it is only an impression) finds these practices less blameworthy than Matheson Fragmentary as the recollections may be as they tumble out during hypnosis or flashbacks, they also suggest a whole, and fit together like a jigsaw puzzle—assembly required, but without need to force or cut the pieces to complete the picture Here we reach the outer limits of literary criticism No amount of assertion can resolve these opposing impressions, only evidence can settle the debate Readers of Matheson's book will find little acknowledgement that such limitations exist

His analysis of coherency among abduction reports lands especially wide of the mark Aliens have three or four or five fingers, wear uniforms or no clothes at all, sometimes show ears and sometimes holes only, and so on—evidence, he says, that a who's who of alendom jumbles together a mass of inconsistent traits His argument relies on verbal descriptions and metaphors, where comparison of some aliens to bugs and others to “embryonic chickens” invokes gaping canyons of variation One look at a collection of illustrations reverses this impression as differences evapo-

rate at a glance He makes much of the Hill and Walton aliens having heads not significantly larger than normal, but how big must a head be to count as truly big? Again the pictures quash the complaint and confirm that these heads match their successors The Allagash entities differ in undeniable respects among the four witnesses, but the appearance of variation carries far less conviction than his catalogue of distinctions suggests, and all the more so given the fecundity of images that Hollywood offers the imagination Matheson even proposes that the Allagash entities resemble (and presumably derive from) aliens in *This Island Earth* and *Invasion of the Saucer Men* (p 218), but to my tastes the Allagash illustrations accord far better with one another than with these movie comparisons he wishes to promote Alienness remains very much in the eyes of the beholder He also seems unwilling to cut the fallible human observer any charitable slack "The height of the [Allagash] aliens varies dramatically from observer to observer, ranging from four feet eight inches through five feet to 'normal human height'" (p 217) The drama seems overstated to me I have a hard time estimating heights to within a few inches of accuracy under the best of conditions, I would expect to lose something even of that limited discernment under alien captivity

What Matheson treats as contradictory can make perfectly good sense within the framework of the abduction story Barney and Betty Hill differ in their accounts, but their descriptions complement one another in a way suggestive of two separate experiences rather than one fabric of borrowed fantasies Matheson complains that aliens sometimes float and sometimes walk, have superfluous stairways aboard their craft, or paralyze some captives but not others I may go to work by bus or on foot, but I call these differences options rather than contradictions He makes repeated reference to aliens instructing their captives to forget in vain (e g , pp 68, 142), or allowing some captives to suffer pain, or abductees who react with little appropriate anger or fear To him these elements reveal awkward literary lapses and exemplify inconsistencies He overlooks the alternative that these elements persist because they are not literary in origin but part of the story, hard nuggets of factual data that continue to turn up and that investigators pass along whether or not they like the aesthetic consequences Despite these literary failings, he credits abduction authors with clever usage of literary devices If these authors are skillful enough to recognize and mend the flaws in a narrative yet fail to do so, Matheson's very standards of literary excellence seem to support experience rather than creative writing as the source of the abduction story He underestimates human creativity when he asserts that examinations and other standard events recur because the abduction premise allows only a finite number of logical plots (p 134) Limits there may be, but abduction reports come nowhere near exploiting even the obvious possibilities long depicted in science-fiction movies, like romance, adventure, derring-do, or invasion If the story rattles around as a thing too small for imagination, it settles comfortably into the confines of realistic memory

Three significant oversights handicap Matheson's evaluation of consistencies A sure way to accent the contradictory side of abduction is to focus on opinions, inter-

pretations, and reactions Abductees respond all across the emotional spectrum to their experience, some to feel victimized, some to feel chosen, and everything in between Investigators have different ideas about the nature of the phenomenon and its meaning, play up the parts that interest them or align with their viewpoint, and play down the less agreeable parts These human responses often clash, but the stories, the alleged events that underlie these responses, vary remarkably little from person to person Hopkins and Mack divide across the compass in their evaluation of the phenomenon, but examine the basic descriptive data they record and their core stories appear largely indistinguishable We can readily agree that “Ann Druffel’s lesbian subjects, Betty Andreasson’s Pentecostal faith, and Whitley Strieber’s Catholicism arguably played important roles in the kind of experiences they had” (p 246), as far as the way these people interpret or understand their experiences, but once again, beneath the veil of human expression lies a similar pattern of happenings

Another way to stack the deck against consistency is to treat any newly discovered or recognized element as evidence that the story has changed Would a reasonable person expect the Hill report to encompass all abduction phenomena, or its investigators to grasp the subject in its entirety from the outset? Most of us would envision pioneer investigators, like blind men describing an elephant, feeling their way from part to part and revising their interpretations as they gain in knowledge, progressing by trial and error toward a conception of the whole For most studies, a process of discovery and perceiving anew is taken for granted For Matheson, this growth spells only proof of contradictions, yet evidence abounds that “new” aspects lie not in a changing story but in a changing awareness of it Looking back on old reports with current hindsight often finds “innovations” like mindscan and hybridization present all along in some form or other, overlooked for a time, later celebrated as key themes of the story With this history in mind, the slightest stretch of imagination unites the pregnancy tests given Betty Hill and Betty Andreasson, the reproductive manipulation of Kathie Davis (p 149), and the hybridization project described by Jacobs into a continuum, a pattern growing over time as a realization but not as elaboration of a fiction The message aspect just as readily reappears in a different light Matheson notes that specific messages are common in such early reports as the Hill, Andreasson, and Tujunga Canyon (p 117), but diminish thereafter While Hopkins’s Virginia Horton, Mack’s subjects, and Whitley Strieber cast doubt on this evaluation in the first place, a closer look at how an investigator like Jacobs treats messages suggests an alternative interpretation Jacobs admits that his abductees receive all sorts of messages, but he seldom details them since they are, in his view, largely deceptive The aliens may remain as garrulous as ever, but the investigator selects the message for omission The “inconsistency” lies not in the story but in its treatment

A narrow base of comparison handicaps Matheson’s analysis with a third shortcoming No reader can doubt his extensive knowledge of the texts he chooses to examine, but they represent frozen snapshots of the phenomenon as a few authors understand it at a given moment in time This sample of cases is small and not necessarily representative He ignores hundreds of other reports that collectively fill in

a much better portrait of what abductions are like. With this perspective he would see, for example, psychic elements as part of the story all along and not a recent addition (p. 204). Matheson's knowledge of ufology and abductions also betrays a shallowness whenever he ventures outside his chosen texts. The clues include "Donald J. Keyhoe" for Donald E. Keyhoe (p. 20), his unfamiliarity with Dr. Olavo Fontes (p. 34), a statement that no contactees reported otherworldly journeys (p. 88), and reference to "the case of one Calvin Parker" (p. 125) without recognizing the Pascagoula abduction. He suggests that Sara Shaw might have drawn ideas from Betty Andreasson's TV appearances to promote her book (p. 121), without noting that the investigations for both abductees were underway at about the same time in 1976, while the first Andreasson book appeared in 1979. No critical argument pivots on these minor errors, but they leave an uneasy feeling that he views the subject through a keyhole and misses the perspective necessary to inspire confidence in his evaluations.

In my own studies and those of Dan Wright based on hundreds of reports, many aspects of the story recur whether hypnosis is used or not and irrespective of the investigator, whether the report went on record in the 1970s or the 1990s. Perhaps Matheson raises too high a standard for consistency. Abduction books are not ideal literature with every element under the author's control; they are history, more appropriately an example of reporting, and even then a flailing human effort to grasp a complex, confusing, frightening, and unfamiliar experience using imprecise language without standardized terminology. Word-for-word repetitions will not occur from one report to another, witnesses will make mistakes, even if they really see what they report, and some impairment of observational acuity may be inherent in the experience. Even the most conservative allowance for simple error opens the door to a remarkable onslaught of consistency. Whatever its cause, it is there, a characteristic deep-dyed in the fabric of the story and not about to vanish every time a critic says boo.

Matheson stakes out an examination of how authors present abduction claims as his primary purpose. This goal suits his literary orientation, whereas any reflections on the nature of those claims best remain secondary and incidental (p. 13). In spite of this vow, readers soon realize that he conducts a referendum on the reality of abductions throughout his book. In doing so he becomes the pot that calls the kettle black, repeating many of the same offenses as his subject authors. The sins of omission that ufologists commit when they summarize cases afflict him as well, where he leaves out the hangar-like mother ship from his description of the Walton abduction (p. 108), demonstrating perhaps that such lapses owe more to oversight than design. A more serious instance occurs in his discussion of the 1967 Andreasson abduction. Her father testified that he looked out the window and saw strange beings approach the house, a morsel of corroboration that ought to give pause to any critic, or at least call for an explanation. Matheson all but ignores this testimony, mentioning it twice in an oblique and passing way (pp. 94, 191–192), even downplaying it as a reference only to "strange little beings," as if failure to specify that they were aliens relegated

this report to the “so-what” heap He likewise promotes an astronomical solution for the Hills’ UFO (p 57) while ignoring their report that the object passed in front of the moon, as well as the large size and visible occupants of the object as it neared By this time the Hills described a craft, not just a light in the sky (p 72) Any evidence in favor of a genuine mystery winds up on the cutting-room floor

Rather than limit himself to criticism, Matheson also promotes a few explanations of his own He underscores Barney Hill’s description of the UFO entities as human and the “roadblock” the Hills encountered as reason to believe they had an unpleasant experience with earthbound humans (pp 55–56) This notion suggests itself to him again in Sara Shaw’s mention that she worried about a “cycle gang” in the Tujunga Canyon area (p 120) He sees the possibility of sexual assault or abuse underlying the reports of Steven Kilburn (p 139), Kathie Davis (p 151), Whitley Strieber (p 171), and several of Mack’s subjects (pp 257–258) In Mack’s case the subjects testify to abuse, but elsewhere Matheson furthers his own point of view without the help of any evidence He is ready to read much into little when he sees the father of Kathie Davis as a potential tyrant, ready to “whack [his daughters’] butts” if they make up yarns (p 150), and does not ask if the comment is humorous or symptomatic of old-fashioned discipline that parents more often advocate than practice The run-ins with human assailants hang by even thinner thread Barney Hill watched a frightening “man” all right, but this man happened to be hovering overhead in a large UFO Matheson does not reckon with this craft in his theorizing, but critical readers have reason to find this omission a serious one Many of the faults of abduction authors appear to be no worse than the faults inherent in trying to make sense of any human testimony

Matheson’s contribution to understanding the mythical life of abductions is enough to make the book worth reading Its most enduring benefit is a keen and thorough exploration of how authors cast the fantastic claims of abduction in a favorable, persuasive light An understanding of the techniques and shortcomings of the positive argument serves every reader, whether proponent or skeptic At the same time this book demonstrates the limits of literary criticism for settling an issue of existence, since his criticisms drub the shortcomings of the historical genre more than ufology, and apply more to the writers of abduction history than to the phenomenon they describe

Kevin D Randle, Russ Estes, & William P Cone, *The Abduction Enigma The Truth Behind the Mass Alien Abductions of the Late Twentieth Century* New York Forge Books, 1999 416 pp

The third book qualifies as nothing less than a landmark in abduction criticism Kevin Randle, Russ Estes, and William Cone join forces to challenge the literal interpretation with the most formidable argument skeptics have ever mounted These authors bring ties to the subject that are unique among critics Cone is a practicing psychologist who has treated a number of abductees, Estes is a producer of docu-

mentary films who has interviewed over a hundred claimants, Randle is a noted ufologist, a leading Roswell researcher but also a pioneer abduction investigator active in the early 1970s before abduction became a household idea. In brief biographical introductions they bare the presence of mysterious happenings in their own lives and portray themselves as anything but knee-jerk nay-sayers. Not only do they have a personal feel for experiences that might be classified as paranormal, they also express no hostility toward the prospect of UFO visitation. What these authors doubt are the specific claims of abduction. For Cone, Estes, and Randle, abduction is a human rather than an alien creation, a poisonous convergence of abductee personality, cultural ideas, and investigator influence meeting to form false memories. They know the subject both in breadth and depth, and their critique has a range to match. This is an argument ufologists dare not fail to hear and heed.

The authors start with a historical overview covering the early reports and some famous cases, as well as two recent personal investigations. This presentation is free of the usual tendentious treatment whereby critics set up their straw man then proceed to knock it down. These authors face consistency, emotion, and multiple witnesses as facts of the story to be explained, not inconveniences to be dismissed or ignored. A history of abduction research introduces the main proponents and their contributions, again in a sympathetic manner. The reader has an opportunity to fix in mind the argument for a genuinely mysterious phenomenon before the criticism begins, and turns the first hundred pages with little reason to think this book is really a skeptical work.

Skeptical the book is, and the authors soon leave no doubt that they approach abduction with harmful intent. In the second section they track the sources of abduction ideas into folklore, popular culture, and dreams. Joining many critics before them, the authors recognize similarities between the sexual themes of abduction and the lecherous gods of mythology or the incubus and succubus of Christian demonology. Fairies and ghosts mimic aliens in appearance and behavior, even down to small details. Thanks to science fiction and the movies, "nothing the abductees report is new and specific to that phenomenon" (p. 122). These pervasive cultural sources negate any argument that abductees escape cultural contamination, because interested or not in science fiction and UFOs, everyone partakes in a "collective consciousness" where abduction themes and images swim in and out of awareness on a daily basis. Kidnap, implants, examinations, sexual themes, dying planets, genetic experiments, and time lapse all have ready precedents. A phenomenon that should be unique proves to be an assembly of cultural standbys available from the movies. "There is no denying that this aspect of pop culture has had an influence on our view of the aliens and their motivations, and therefore on the reporting of stories of alien abduction" (p. 124). Dreams draw on preoccupations of waking life. People preoccupied with UFOs or set by investigators to see an alien behind every vague sensation build up progressively detailed, convincing dreams of abduction. Sleep paralysis lends vividness to some experiences, boundary-deficit personalities readily confuse fantasy and reality, but investigator influence pushes the subject to believe and

repeat similar stories "While abduction researchers will look only for the corroboration of a tale from one witness to the next, we see the contamination from one researcher to the next" (p. 140)

A lengthy section spotlights important investigators one by one. These critiques include Hopkins, Jacobs, and Mack, but they also treat Richard Boylan, John Carpenter, James Harder, Alvin Lawson, and Derrel Sims, figures not mentioned in Matheson's book. The approach here also diverges from Matheson, exchanging a close reading of major books to expose their methods of persuasion for a focus on the faulty arguments and techniques of the investigators. Where Jacobs separates abductions from false-memory syndrome because abductees recall recent encounters, often remember without hypnosis, offer indirect corroboration, and are allegedly missing during the abduction, the authors find good reason to question these assertions or demonstrate that claims of sexual or satanic ritual abuse display similar properties. None of the phenomena that Jacobs reserves for abduction are unique to it (pp. 210-212). Where Mack doubts that anyone would make up such an unpleasant story, observes that abductees' emotions match the alarming nature of the events, finds no psychological diagnosis to explain abduction, and remarks on the consistency of the stories, the authors counter every point. Attention-seeking, profit, or a need to belong might motivate claimants, while strength of emotion may demonstrate belief but not reality. Boundary-deficit problems and a weak sense of self could predispose an individual to believe, and ritual-abuse stories are consistent even though false (pp. 241-246).

The authors hammer home their most telling point as they demonstrate time and again that leading the witness is a common denominator among abduction investigators. If the reader wanted to sum up one primary thesis for the book, it would be "the abduction phenomenon is an outgrowth of what the researcher expects rather than what the abductee experienced" (p. 171). The story stems from suggestions and reinforcements as investigators impose their agenda of beliefs on pliant subjects. The words of the investigators themselves often provide the smoking gun. Boylan (pp. 152-154), Carpenter (pp. 168-175), Harder (pp. 187-190), and Hopkins (pp. 195, 204-206) describe subjects who bring only the most trifling evidence for abduction, but with a will to believe and an investigator all too ready to help, wispy images of dreams or a vague sense of unease soon blossom into full abduction. Suggestion, hypnosis, contamination from culture and other abductees ratchet innocuous ideas into firm expectations of abduction that dreams and reassurances of the investigator then fulfill.

Even the investigators who profess to guard against influence often overlook it in their practice. Mack recognizes that the investigator makes a difference when he says "the quality of the experience of the abductee will vary according to who does the regression" (p. 245), but fails to apply this insight to his own role. In his quest for cultural transformation in the abduction experience, he misses indicators for boundary deficit, identity disorder, and sexual dysfunction as clues for a conventional psychological solution. Jacobs readily admits that hypnosis can cause false memories

He reassures readers that he cannot be fooled, but here the authors find that his methodology builds an air castle rather than a foolproof scheme. His system includes accepting an element as valid only when he hears it from several sources, and cross-checking recollections to break down screen memories, some that arise as the mind masks unsettling events to defend itself, others that are illusions instilled by the aliens. By tying a subject's recall to his universal itinerary of abduction events, confirmed by hundreds of witnesses, he can divide fact from fiction on a reliable basis—or so he claims. These procedures sound painstaking and scientific, but they only further the cause of self-deception. Psychologists reject the theory of screen memories altogether. The methods Jacobs employs are circular, since he throws out any contradictory testimony and declares other investigators' findings as faulty if they oppose his assumptions. Though he is awash in evidence for suggestion and contamination, for hypnotic tampering with memories until they fit his scheme, he closes his eyes to alternative explanations and the likelihood that a process of false memory creation masquerades as a process of discovery. This same rotten foundation underlies the entire case for literal abductions.

Convinced that they have bared the mechanism for creation of abduction stories, the authors buttress their case with parallels where hypnosis and group reinforcement have created monsters out of the mere nothings of memory. Just such a scenario unfolded during the 1980s–1990s witch hunt for sexual and satanic ritual abuse. Allegations leveled by adult children against their parents, or by children against day-care operators, claimed recurrent molestation and subjection to horrific rituals. Supported for a time by law-enforcement officials, families were torn apart, businesses ruined, and individuals imprisoned as a result of prosecutions for these alleged crimes, despite a complete absence of corroborating evidence. Here as in abductions, the common thread lies in the investigators. Therapists convinced that repressed memories of childhood abuse explained current psychopathology went on a crusade to dig out those hidden memories. In the process these therapists planted ideas of abuse in their subjects, typically susceptible women or young children, and encouraged them to repeat these suggestions as facts, often under hypnosis or other memory enhancement techniques. The results were striking. One therapist after another discovered recollections of abuse that were rich in detail and similar in content. Doctors, social workers, and police officers became convinced that abuse was rampant and a vast satanic cult operated in the shadows of society. William Cone saw the truth that “[o]nce the belief system is in place, all work becomes self-verifying” (p. 278) in his own practice as a woman named Janet began therapy for minor problems, then discovered an escalating series of abuse memories and multiple personalities under the influence of therapists and support groups. She refused to accept any alternative explanations and ultimately downspiraled into a dysfunctional state that ended in suicide.

The lesson for abduction research is that the processes are identical. Memory is pliant and investigators work it, implanting suggestions then reinforcing belief until the subjects repeat the proper abduction myth. The genuine, strange experience of

sleep paralysis may underlie the belief and provide a platform of sensations like immobilization and a presence in the room, while suggestion builds from there Support groups add another agency to create and reinforce false memories Once a stage in the process of psychological healing, these "recovery" gatherings now establish a group culture and participation becomes a matter of identity for an individual often lacking a strong identity elsewhere The group demands conformity to its beliefs and the participants accede with ever more confessions of abductions or abuse

What remains of the case in favor of abduction is a collection of flimsy claims for corroborating evidence—scars, implants, and missing fetuses They sound impressive as claims, but evaporate on close examination Everyone has scars and no one has demonstrated to any minimal standard of proof that a given scar derives from an abduction Implants invariably prove mundane and the evidence for a missing fetus always goes missing without documentation to back it up Like the vast satanic conspiracy, the scale of the supposed abduction project defies logic, as does the implausible mixture of advanced and primitive characteristics of alien technology Abductions happen only in the mind The authors do not condemn the abductees as liars or the investigators as deliberate creators of the abduction phenomenon, but create it they do, with suggestion and belief reciprocating to cultivate one more episode of false memory syndrome

This ambitious book batters abduction from just about every conceivable angle Shortcomings are inevitable, some slight and some grave On the minor side, the authors are stingy with references as they often discuss scholarship without quoting a source At worst they do not even identify a figure—for example, anthropologist Anthony F C Wallace appears only as "Wallace" on page 292 For the sake of fairness and convenience the reader might also wish to check some quotes from investigators, such as a statement by Budd Hopkins that he knows of no case where a female abductee reported intercourse (p 91) Is this statement recent or from early in his investigative career? The timing and context matter, because the authors pillory him and other investigators for overlooking claims of sexual activity, or diluting it into reproduction research (pp 97, 99) The only way to follow up is to read a whole book or perhaps the writer's collected works, so vague is this book in its references

Authorship by committee seems to pay the penalty of an occasional dead end or contradiction Chapter 5 builds the aforementioned case for investigators (Jacobs excepted) highlighting reproduction rather than sexual activity in abductee claims, but the point of this fine distinction peters out without ever going anywhere It appears intended to illustrate both the tunnel vision of investigators and a psychological trend among abductees, but the authors never develop the theme to a satisfactory conclusion The gallery of investigators begins with Marshall Herff Applewhite, notorious leader of the Heaven's Gate suicide cult Why Applewhite belongs in the company of abduction investigators escapes the author of that chapter, apparently, since he asks the question then leaves it unanswered Chapter 4 raises the important issue of relationships between contactees and abductees, then straightway muddles

the discussion by confusing the 1950s contactees with recent examples like the people who attend Leo Sprinkle's "Contactee Conferences." The authors see an inconsistency when ufologists reject contactee claims yet accept abductions, but the mystery as presented here is nonexistent. Ufologists dismissed early contactees for good reasons like fake photographs, mercenary interests, and long-winded philosophizing. What is inconsistent about acceptance of sincere reports rather than transparent hoaxes? And once in a while the right hand fails to remember what the left is doing. As a case in point, on page 126 we read that "[t]he elements for the abduction scenario as outlined by the Hills were abundant throughout the media. There is no denying that pop culture had supplied the various elements. Betty Hill may have pulled them together into a single, neat package." By page 348 the burden of guilt has shifted: "The key to understanding how so many abductees can tell stories that are so consistent is because of those who conduct the research. It has nothing to do with the abductees and what they know before the sessions begin, and everything to do with the researchers and what they believe."

One omission starts out as a minor concern but grows huge as the book goes on. The authors mention their own studies of abductee personality—whether by survey or interview is uncertain—and drop increasingly provocative hints of their findings. These findings reveal significant discoveries about the abductee population—abductees have a poor sense of self and describe themselves as unattractive or life-long outsiders (p. 97), they hail from dysfunctional families, have difficulties in human relationships and an impaired sex life (p. 98), they experience boundary-deficit problems and sleep disorders (p. 244) or identity disorders (p. 292), and are postmenopausal or unable to bear children if they report hybrids (p. 100). Many abductees are homosexual, hypersexual, or asexual (p. 100), with up to 90% having some sort of sexual dysfunction (pp. 101, 244). The authors state that some (unnamed) researcher identifies 60% of abductees as homosexual (p. 292). These are startling results, shattering as they do the image of the abduction population as indistinguishable from the norm. Even Kenneth Ring's finding that a statistically significant portion of abductees also reports an unhappy or abusive childhood tallies nowhere near the high percentages quoted here. In the authors' studies, abductees are psychologically distinctive in the extreme. At 400 pages of small type, the book runs to such length that the authors may have omitted the details of their study as a matter of necessity, but they are dropping bombshells without presenting the reader with any systematic exposition of the size and nature of the sample, methods and tools, or numerical results. Studies of abductee psychology fill a crucial gap in our understanding. They deserve the spotlight rather than fleeting asides scattered here and there, both for their intrinsic interest and for their evident influence on the authors' thinking. We can hope that a formal journal article will redress this tantalizing and severe shortcoming.

This book joins its skeptical brethren in paying obligatory lip service to the cultural-source hypothesis. The abduction story parallels the themes and images of traditional and popular culture, therefore abductions must borrow cultural motifs—a

claim that has become formulaic, and appears here little improved with rethinking. The authors flog an argument of mine—that abduction stories do not count as folklore because they do not act like folklore—as a mere exercise in semantics. According to the view promoted here, whether the stories qualify as folklore in any technical sense is irrelevant. If they are impersonal, they compensate by satisfying the teller's need for attention, if the content varies too little, mass communications have standardized expectations, if the same sequence of events recurs, this order reflects the right way to tell a story. The dynamics of these narratives settles nothing about their origins.

Is there any way to pare fact from fiction on the basis of a story alone? We cannot assume a conclusion and accept mere analogies of content as proof that abductees borrow from culture. Content is ambiguous. An alien or an astronaut descends from the sky, and therefore becomes like the gods of old in one respect, but the likeness holds little value in identifying the nature of the visitor. More decisive evidence than content comes from consideration of narrative dynamics. Folklorists have learned what happens when narrators borrow their plot elements from culture, and find the old rules still apply whether the culture is age-old or up-to-date. "Collective consciousness" is a happy phrase, but the fact remains that ideas live not in some cultural abstract but in the consciousness of one member at a time, and every story is a personal formulation, an individual wrestling with possibilities. An abductee could just as easily cast himself as the hero of his own story, if it is a fantasy, or elaborate the content into romance and adventure even while framing it within the "right" structure. Folklorists once feared that mass media would homogenize storytelling, but the media became just one more voice in the transmission process—people picked up ideas hot off the press or off the TV set and immediately transformed them into personalized narratives, bent them into traditional patterns, even spun them into artistic yarns, anything but repeating the received text with slavish fidelity. Abduction is a theme ripe with possibilities, abduction reports an object lesson in possibilities unrealized. That fact alone weighs against cultural borrowing. I doubt the folkloric origin of abduction reports because they fail to show key traits of creative imagination in this or any age, and such a discovery amounts to more than semantics. It is a distinction that makes a difference because it tilts in favor of experience rather than fantasies, urban legends, or other cultural origins.

The authors deserve praise for few sins of commission, few instances where they manhandle the facts to fit their theories. Their record on sins of omission fares considerably worse. By sins of omission I mean those alternatives and other sides of the coin whose inclusion spoils an otherwise clear and persuasive argument. From beginning to end the authors step wide of evidence likely to cause such spoilage. They compare abductions to witchcraft beliefs, aliens to fairies and ghosts, always selecting favorable elements such as demonic sexual assault, the short stature of fairies, the prominent eyes and otherwise featureless face of the shrouded ghost (pp. 107–112), all impressive enough when broken loose from the context of tradition. Readers see the sunny side but not the rest, where fairies of alien size make up only a

minority population (see the fairy books of Katharine M Briggs), and the image of ghosts has undergone multitudinous changes through the ages (see R C Finucane, *Ghosts Appearances of the Dead and Cultural Transformation*) Against the fullness of tradition, the basis of the similarities looks more and more like mere chance and selection bias A claim that there is “a diversity of UFO occupants until the information becomes set by media influence” (p 113) holds little water in a comparison of illustrations from reliable abduction reports These images march in a parade of surprising consistency, and even the differences repeat with notable regularity The undeniable increase in media attention ought to disrupt the early pattern of the abduction story, if borrowing truly runs rampant, but my findings fail to bear out this expectation The same story elements recur in the same proportions now as 30 years ago (see Thomas E Bullard, “What’s new in UFO abductions? Has the story changed in 30 years?” in the *MUFON 1999 International UFO Symposium Proceedings*)

When the authors turn to science fiction, they again peel a keen eye for similarities and wink the other against all differences “Pop culture is filled with examples of alien beings and alien spacecraft that match the beings and craft being reported today by the abductees” (p 119) No one will dispute this statement, but it offers only half an answer Yes, elements of the abduction story appear here and there in the movies or on the covers of pulp magazines These same sources display an abundance of equally impressive images and plots that never feature in an abduction report, and any reasonable case for influence cannot favor one and ignore the other If influence really works as hard as the authors believe, they owe the reader an explanation for how influence works so selectively When we read that “nothing the abductees report is new and specific to that phenomenon” (p 122), a fair context for that statement would encompass the fact that nothing is new and unique to any phenomenon Somewhere in the vast archives of tradition and popular culture, a diligent searcher will find something to resemble anything, allowing some level of abstraction

Martin Kottmeyer has demonstrated the rigorous way to establish a case for cultural influences It requires the supposed source and consequence to share traits too complex to match by chance, and reasonable evidence that exposure occurred, such as close proximity in time Here the authors bypass that good example They build no case at all but settle for loose resemblances as conclusive proofs, in comparisons so flimsy they raise more eyebrows than amens Readers are asked to accept the skull on a pirate flag as a viable antecedent for the gray alien face, because a skull has the same large eyes, rounded head, and tapered chin (p 112) Now, I have a skull beside my computer, the appropriate *memento mori* for a gentleman and scholar, and one feature I cannot overlook is a prominent set of teeth Both alien makeup and the authors’ discussion omit this same toothy grin It undercuts the persuasiveness of the comparison, and convicts the authors of low standards in drawing similarities The authors note (p 233) that for some theorists, “while searching for evidence that a theory is accurate, everything that even remotely suggests that theory is correct is

lifted, out of context, and plugged into the formula." This warning offers sound advice all around.

Other omissions punch gaping but undeserved holes in the more persuasive abduction accounts. A treatment of the Hill report (pp. 125, 140) acknowledges only that the Hills believed a UFO pursued them and Barney's panicked assertion that they were about to be kidnapped planted the idea of abduction for Betty's dreams to cultivate. Nowhere do we read the important details that the UFO drew close enough to loom enormous in the sky and Barney observed occupants within, lending substance to his fears. Multiple-witness reports, while acknowledged to exist, scarcely rate mention here. Pascagoula, Walton, and Betty Andreasson's father drop away as dead letters in the reckoning of evidence. The authors find paralysis in 50% of reports and cite this figure as evidence that the frightening experience of sleep paralysis underlies many abductions (p. 350). Some conditionals must couch this important point. In my own studies, I find about one-third of all reports including paralysis during capture—but this figure holds equally true for abductions reported from the beginning to 1977, 1978 to 1986, and 1987 to the present, despite the fact that instances of bedroom capture have burgeoned from 18% to 34% to 59% of the reports over these same time periods. An increase in sleep paralysis should accompany an increase in locations conducive to sleep, yet this expected trend seems unrealized. The qualitative descriptions add further nuances, since some abductees report the paralysis creeping upward from their feet or afflicting them only at the instigation of the bedroom intruders. Where the authors call attention to an undeniable source for some reports, they oversimplify the role of paralysis as abductees report it.

A kindred warning applies to the culpability these authors see for hypnosis. They assign it an important role in creating abduction reports and beliefs, following the time-honored custom of skeptical argument, but many twists and nuances get lost in the process. From Villas Boas onward some abductees never need hypnosis, many others bring home partial recall. The authors rightly doubt the purity of these conscious memories, since some originate in dreams or under the influence of books and persons with abduction ideas to feed the subject (pp. 351–352). Subtracting these suspect cases diminishes the number of free recalls, but does not erase them entirely. The similarity of encounters recalled with and without hypnosis further beclouds its importance as an agent, and the admission (p. 211) that some memories of satanic ritual abuse emerge spontaneously still further entangles the issue. The puzzle here has less to do with the reality of abductions than with the real place of hypnosis in forming unusual memories.

The authors' case for investigators as the source of consistent abduction stories rests on much stronger foundations than their cultural-source hypothesis, but here the reader has to wonder if the presentation is always full and even-handed. Budd Hopkins finds genital manipulation because he asks for it straight off, if we believe this account (p. 205), but according to Hopkins, his technique of questioning starts at the feet and progresses to the head without homing in on any part of the body as special. Abduction stories follow leading questions and reinforcing hints almost as

dependably as a can of soft drink rolls out after coins drop into a vending machine, the authors suggest, but when investigators try to lead abductees and they refuse to respond, these failures become "ham-handed" efforts without significance (p 245) The authors conclude that suggestion explains why Hopkins hears of standard gray humanoids from 85% of his abductees (p 349) Yet humanoids appear in similar proportions before and after Hopkins entered the field, and if he is so influential, why does he not aim for a perfect score and squeeze 100% from his subjects? A key thesis of the authors' argument states that what the investigator believes, the abductee will express (pp 293, 348) Again the truth eludes this one-to-one correspondence Investigators who expect the worst sometimes find the best, and vice versa, while events of the story remain the same no matter how the investigators' agendas vary Where the authors make much of subjects saying their memories are dreamlike or imaginary (e.g., p 195), investigators interpret these comments as denial or attempts to make conventional sense of a painful reality Common sense and simplicity favor the authors, but the investigators' answer deserves a hearing for plausibility as well

All in all these criticisms amount to nibbling around the edges At the heart of the matter, Randle, Estes, and Cone have drawn an impressive critique of the abduction phenomenon, and no ready response endangers their argument They have achieved a genuine explanatory theory, recognizing that no one-horse answer can pull the whole load, no scatter of possibilities can truly satisfy The answer to abductions lies in plausible interconnections among the chief players, abductees and investigators Suggestible subjects bring a will to believe and exposure to abduction-like ideas from the media and the common culture A longing to understand why they have always felt different, a desire to find a cause for their problems outside themselves, and a quest for belonging motivate these people to believe they are abductees (p 290), and the abduction belief system satisfies their needs The experience of sleep paralysis may lend an eerie stamp of authenticity to suspicions of abduction and dreams incubate ideas into growing fantasies These distinctive and suggestible people are abductees because they are ready to be

More important than this receptive clay is the right sculptor to shape it, and investigators lend a willing hand They suggest, lead, and reinforce until they coax out the familiar story with a full complement of emotions Investigators share the secrets and formulas of abduction with one another, so that every investigator looks for and suggests a similar story Taken together, these pieces of the puzzle interlock in a coherent picture, complete with the whos, hows, and whys to account for the origin and appeal of abduction beliefs The authors reinforce their case with provocative parallels—how closely the sexual-abuse/satanic-ritual-abuse controversy resembles abduction in the stories elicited and method used to "recover" them, how much the discovery of past lives, bizarre abuse, or alien abduction depends on the story an investigator seeks, how different interpretations and attitudes among abductees reflect different agendas among investigators These meticulous criticisms of investigators comprise the central theme of the book and hold the theory together An unconvincing detour through the cultural-source hypothesis is largely redundant against

the persuasive strength of the hypothesis of investigator as efficient cause

All of these explanatory elements have appeared before, but never have skeptics applied theory so effectively to reality In this flexible, wide-ranging solution, the authors have succeeded better than any predecessor in defining step by step the conventional mechanism that creates, propagates, and lends consistency to this fantastic story Their achievement deserves the highest praise and the closest attention

WHITHER ABDUCTION RESEARCH?

Let me say this in the plainest possible words Randle, Estes, and Cone have written a milestone book and created a crisis for abduction research in the process Where skeptics in the past overplayed one or two ideas and critics had an easy time tipping over these two-dimensional explanations, this new effort amounts to skeptics getting their act together and confronting proponents with a truly rounded alternative It is grounded in the realities of abductee personality and investigator practice, it has a sound answer for the key tenets of the affirmative case, it withstands refutation without reliance on tricks or distortions A reasonable person cannot help but find this argument plausible Even readers familiar with the phenomenon must admit that the explanation is cohesive, credible, and largely free of holes

A milestone calls for travelers to take their bearings and measure their progress The authors sound the alarm that abduction research is lost, and worse, it is futile and even harmful, creating false memories in abductees, diverting time and resources from worthwhile UFO research onto a dead-end track Randle, Estes, and Cone may not be right, but at a bare minimum their explanation spells an end to business as usual For 33 years abduction research has entrenched in a cycle of case investigations, content comparisons, and point-counterpoint disputes Case investigations are and will remain the bread and butter of research, comparisons offer necessary summaries of patterns and trends, but from this day forward, these practices are no longer sufficient to sustain a credible case for abduction Right or wrong, the conventional alternative formulated here raises the bar that proponents must clear

Any genuine advance in abduction research must no longer take the witness for granted A body of psychological and biographical studies has begun to accumulate, and it reassures us that abductees are neither fantasy-prone nor much else that might locate them outside the norm Even the differences—the guardedness or dissociative skills—can be read as consequences of unusual experience, not its causes What we have come to expect is a cross-section of society, ordinary people who could be friends, neighbors, relatives, even ourselves, who have experienced an extraordinary encounter and brought back a few telltale signs from their brush with the unknown In no way do these individuals light up with distinctive psychological characteristics This image rests on limited studies, while this present work reminds us of our incomplete understanding by turning upside down the very conclusions that seemed most firmly established If Randle, Estes, and Cone are right, previous indicators are wrong or misread and abductee status goes hand in hand with acute psychological

distinctiveness Clearly this important claim requires cross-examination and replication, also reconciliation with earlier findings The vital question of suggestibility among abductees remains a big "X" in formal studies, despite the availability of scales to test susceptibility All roads lead to psychological exploration of the abductee as a priority in future inquiries

The abduction literature overwhelmingly spotlights what investigators find while leaving the investigators themselves hidden in the shadows By implication the investigator serves as a humble tool, a sterile instrument that releases the abduction account without contaminating it in any way This benign image has tracked a collision course with doubts even before the present book, especially as the false-memory debate erupted Scattered through the literature on recovered memory, abduction receives passing mention as another example of psychology gone astray, another bizarre memory created by overzealous investigators unaware of the power of suggestion and the dangers of hypnosis A day of reckoning with abduction investigators under the light was bound to come All three books reviewed in this essay shine that light, but Randle, Estes, and Cone focus the most penetrating beam as they point out where one investigator reinforces "right" answers with verbal approval, another discourages "wrong" answers with silence, still another furnishes a model by priming the subject with abduction stories

These authors catch too many questionable procedures in the act to dismiss the accusations as unfounded Abduction investigation has remained a painfully amateur effort without standards or regulation in procedures where, as the false-memory controversy demonstrates, even trained professionals fall prey to error and self-deception The burden now weighs on investigators to examine themselves in the mirror of criticism How accurately do the authors portray the investigation process? Have they missed important checks and balances, or do systematic weaknesses in technique threaten—even render worthless—the cumulative testimony of abductees? An impulse for self-defense will doubtless motivate investigators, but the issues at stake are larger than personal pride, bearing as they do on the welfare of abductees and a commitment to truth wherever it lies The inquiry may take place in that foggy bottom where truth and fiction wear equal shades of gray, where no eye can distinguish genuine experience from imagination Nevertheless an attempt is imperative, perhaps in the form of reviews of sessions by outside evaluators and possible experiments with subjects to test their response to suggestion If suggestion and reinforcement can encompass every aspect of the stories told, preference must go to this conventional solution If significant aspects remain outside the scope of influence, then the story will appear to have an intriguing solid core For now Randle, Estes, and Cone have raised enough questions to tilt the evidence in favor of a conventional solution

The case for abduction means anecdotal evidence and little else A physical phenomenon carried out on an extensive scale for decades by none-too-careful aliens has nevertheless left behind no convincing physical residue Claims of such evidence abound, but when called to witness they fail to appear This no-show proves

nothing, in fact it reveals the supposed evidence as nothing more than another motif in the story, and bares the nakedness of proponents' proofs Abductee testimony and comparative studies have gone as far as they can go One provides direct but unsupported evidence, the other indirect and derivative evidence, and together they build a house of cards Abduction research needs substantive independent confirmation to ever win a foothold in the precincts of physical science

Earning such recognition will require videotapes of aliens at work, or convincing evidence that they foil attempts to tape them If this holy grail proves unattainable, then an implant with demonstrable unconventional properties would help, or verified examples of missing fetuses Even well-confirmed, well-documented instances of people missing during the alleged time of abduction would be an improvement The authors make the helpful proposal that abductees make a photographic record of body scars as a way to track new appearances and at least clear up the possibility that a newly identified scar was present all along More detailed testimony from multiple witnesses and care against contamination would enhance the value of this important line of evidence In the future any investigator hoping to prove there are solid chunks of reality inside the murky haze of abduction stories will have to document and confirm every possible claim

Randle, Estes, and Cone might have borrowed the example of Jacques Vallee's famous book and titled their own, "Autopsy on a Phenomenon" As it stands, this book performs funeral rites for abduction in any literal terms Whether readers gather for a burial or a rebirth remains to be seen, but without doubt the status quo is dead Few occasions hurt as much as those that call into question decades of hard work and dedication, or cast doubt on vast files such as abduction research has amassed, but such a crisis now confronts us, and our responses gauge the intellectual and emotional maturity of the field With this setback comes a chance for growth, an opportunity as well as an obligation to rebuild abduction research from top to bottom If investigators meet the challenge with a new rigor of method and accountability in evidence, what is genuine in this phenomenon can spring into the open for everyone to see, and if the reality proves empty after all, the entire episode will offer a valuable study in the ways of human imagination and error If investigators ignore the charges against them and trudge on as before, abduction research will relinquish any claim to scientific, rational research and drift off into the neverland of cult and belief These are the two courses open today The choice is as stark as that

In any case we all owe a debt of bruised gratitude to Randle, Estes, and Cone Either they have essentially solved the mystery of UFO abductions, or they have provided the kick in the seat needed to stir ufologists out of their trenches and into a more disciplined attack on the phenomenon The thanks come hard, but the authors' achievement is considerable

Book Reviews

Steven Dick *The Biological Universe The Twentieth-Century Extraterrestrial Life Debate and the Limits of Science* New York Cambridge University Press, 1996
578p

Dr Steven J. Dick's *The Biological Universe The Twentieth-Century Extraterrestrial Life Debate and the Limits of Science* is the last of three volumes published by Cambridge University Press about the theory of and search for life on other planets. Dick's previous volume *Plurality of Worlds The Origins of the Extraterrestrial Life Debate from Democritus to Kant* was the first volume in the series. His latest book encompasses the period from the 1890s until the present day. Dick is an astronomer and historian of science at the United States Naval Observatory in Washington, D.C., and as such he brings a deep knowledge of science to bear on his subject as well as a historian's training.

The Biological Universe is a monumental work incorporating thought and material from physics, biology, chemistry, radio astronomy, philosophy, theology, cosmology, planetary science, UFO research, and even popular culture. Dick is extremely thorough and objective, and he gives detailed attention to the tremendous variety of arguments and evidence central to the extraterrestrial life debate (ELD). He does an excellent job of outlining the debates, controversies, breakthroughs, and advances that fields such as astronomy, astrophysics, and biology have made to finally come together in the discipline of exobiology and the SETI program.

This volume begins with the indication of "canals" on Mars, and follows the arguments throughout the next 100 years that scientists and the general public have focused on about the possibility that life might exist or be discovered on another planet. Dick shows how the increasing empirical data transformed thought from the debate over whether other life could exist at all in our solar system to the idea that life must exist elsewhere in the universe. This is a debate that is by no means settled. There are still scientists who believe that life is so unique and rare that it might have developed on Earth and nowhere else. However, most scientists who speculate about this question agree that the odds are that it almost certainly has developed on other planets in the universe. Arriving at this conclusion which, I suspect, most people now take for granted, is somewhat of an intellectual roller-coaster ride that Dick takes the reader on as he plows through the aspects of nearly all the relevant debates in the past 100 years.

Many of the major scientists of the 20th century have been involved in one way or another with the ELD. Here we see Calvin, Drake, Hoyle, Lowell, Morrison,

Pannamperuma, Sagan, Struve, Whipple, and scores of other scientists debating the possibility of life in outer space and how to detect it. The ingenuity and intelligence of these 20th-century scientists have created the intellectual and scientific underpinning of the idea that life not only almost certainly exists elsewhere, it is within the realm of possibility that we could make contact with it.

The origins and background of these debates should be of intense interest to all serious UFO researchers, but UFO literature is almost devoid of references to it. To a certain extent this is understandable. Being engaged in a speculative debate about whether life does or can exist in outer space is peripheral to the UFO controversy. For UFO researchers, the question is not one of speculation, it is more of the gathering and weighing of evidence that many serious researchers now feel inevitably points to extraterrestrial life. Dick's *The Biological Universe* provides a fertile area of research for UFO scholars because it clearly shows the intellectual processes and background that has given impetus to the scientific community's opposition to the UFO phenomenon's reality. Thus, it gives shape and depth to the controversy that has taken place parallel to the UFO debate and allows UFO researchers to understand many of the reasons why the scientific community's opposition to the UFO phenomenon has been so fierce.

To Dick's great credit, he assumes that the UFO controversy is part of the overall extraterrestrial life debate—an extraordinary step for any academic. Although he is a skeptic about UFOs, he is by no means a debunker—a rare person these days. For example, he had the distinction of organizing the first panel on UFOs for the History of Science Society in Washington, D.C., in 1992 in which Michael Swords and I participated. This fair-mindedness shows up in *The Biological Universe* in the form of treating UFO researchers with respect and actually researching some primary documents and books, along with using some older secondary sources—something rarely done by non-UFO scholars.

Dick provides a 50-page chapter on the UFO debate in the middle of his book. Unfortunately, in spite of his research, he knows less about the phenomenon than he does about more mainstream disciplines. He is not fully current on contemporary UFO research and therefore has only a partial understanding of the abduction phenomenon or other advances in UFO thought. Like others who have dipped into this field, he opts for the idea that UFOs are a product of the culture. He is disturbed by abduction claims, hypnosis, ancient astronauts, and the "ultraterrestrial" theories (which he assumes dominates serious thought on the subject). One can expect little else from someone who is not a primary UFO researcher. As a result, Dick finds appealing those scientists who think that UFOs are not indicative of alien technology. In spite of his qualms, he includes the UFO debate as an important part of the continuing struggle to find extraterrestrial life. Dick also assumes that the possibility exists that UFO proponents might ultimately be right and therefore it is important to document, however sketchily, some of the UFO debates and relate them to the intellectual currents of the scientific community.

As one reads this book, it becomes clear that the scientific community's framing

of the extraterrestrial life debate has helped prevent it from engaging with the UFO data, which exist outside of the ELD's parameters. The participants in the ELD have defined it to include virtually everything except the UFO phenomenon. They not only feel that the UFO phenomenon has no basis in reality as potentially extraterrestrial or even anomalous, they also think that those who study the subject are deluded and unscientific. Refusing to accept the UFO phenomenon on its own terms, ignoring all the scientific studies that have been mounted on the subject, and assuming that those who study the subject are unworthy of serious attention, they have categorized it as pseudoscience and popular culture. The scientific community's demeanor is frustrating, but it is also understandable.

Much of this understanding must be approached from the UFO research community's point of view. The scientific community's abrogation of its responsibility to study the subject in the 1940s and 1950s left a void filled by the public relations arm of the Air Force. It also created a vacuum in which lay citizens stepped forward to collect, research, and analyze the UFO phenomenon—a job that the scientists should have been doing in the first place. Now these scientists castigate UFO researchers for doing their work inadequately. They complain that the evidence collected does not warrant serious attention, in part, because UFO researchers do not present it in a scientific manner. It is an odd Catch-22 created by the vicissitudes of the Cold War, ridicule, and the problems of verifying a phenomenon that actively dictates the terms upon which it can be studied.

Although of much less intensity than those of the UFO research community, the ELD debates have encountered serious problems over the years. The debates themselves have rested upon questionable assumptions and inadequate knowledge. Virtually all theories about the possibility of life in outer space are based on theoretical considerations derived from knowledge of life on Earth and from the chemistry and physics of the study of astronomical matter. They have no circumstantial, anecdotal, or observational evidence of life elsewhere except what they can deduce from life on Earth. But they do not know how life on Earth originated. Theories that seemed promising turned out not to be, other theories were unable to be advanced. For example, scientists have been unable to advance Stanley Miller's and Harold Urey's famous experiments with creating amino acids from inorganic material to the next level of complexity.

They have other problems as well. Congress has cut funding for SETI and the space program in general has been trimmed enormously. By far, however, its most important problem has been that it has been largely unsuccessful. It has not discovered irrefutable evidence of cellular life in space and it has discovered no evidence whatsoever of advanced life. Yet, in spite of its difficulties, it moves forward with the support of NASA, and other institutional support, many elements in the scientific community, and the admiration of the public.

Dick's book clearly indicates that UFO research and the "mainstream" extraterrestrial life debate have been paralleling each other for the past 50 years—each searching for the evidence of alien life. Even though considered "fringy" by some other

scientists, and almost completely lacking in evidence for the existence of life, the search for life in space has had institutional backing, the involvement of extremely talented people from the academic and scientific communities, and the support and interest of the public.

The situation with UFO research is very much the opposite. By and large, the UFO research phenomenon is a grass-roots phenomenon. It is made up primarily of lay individuals who have not had significant scientific training. Of the scientists and academics interested in the subject, few have the credentials and standing within the scientific community that the many luminaries in the extraterrestrial life debate have possessed. Most academics consider it not only fringy, but also illegitimate. Therefore, UFO research has not had institutional funding and, until recently, it had virtually no funding of any type.

As a matter of necessity, the extraterrestrial life debate has been far more speculative than the same debates within the UFO community. UFO researchers have observational and anecdotal data that directly relates to extraterrestrial life, whereas in the scientific community the debate is primarily centered around whether new discoveries in the scientific world can allow for less or more possibilities of life existing elsewhere. The scientists involved in these pursuits routinely reject UFO anecdotal and observational evidence as being too weak to take seriously. In spite of this, the scientific community has not fully engaged with the vast amounts of data that the UFO research community has amassed. For its part, the UFO research community has not fully understood the intellectual dynamics and politics that have motivated the extraterrestrial life debate in the scientific community. Yet, both of the fields are working in the same direction for the same goal. In the best of all possible worlds, it would be ideal for the two fields to be combined. *The Biological Universe* does not go this far. But, by placing the UFO phenomenon in the context of the extraterrestrial life debate, and therefore in a less marginalized position, Dick seems to be allowing for the possibility that the two can be reconciled.

Although the book is a great contribution, it is not without problems. He sometimes tells the readers more than they need to know. He throws in huge amounts of material, some repetitive, some nonessential, and therefore he increases the danger that the reader will become unnecessarily bogged down in details and minutia. He does not always give the reader a clear indication of the best intellectual path to take.

Dick tends to treat virtually all of his subjects equally, when some are clearly more substantial and influential than others. The reader sometimes finds it difficult to get a sense of who is most important and who is not. His discussion of UFO researchers is adversely affected because of this.

Although Dick does give a nod to cultural and political currents, especially in the beginning of the space race and the funding of SETI, and he provides a chapter about aliens in literature and the arts, for the most part he focuses on the development of ideas. As a result, one loses sense of cultural perspective that places the debates within the times and society in which scientists live and work. Furthermore, one also loses the sense of drama that goes with the development of new thought.

Perhaps this is necessary for this type of study, but it would have been nice to have more of it

I do not want these problems to detract from the Dick's extraordinary achievement. Dick provides a lineage and chronology of intellectual development during the past century that is stunning in its breadth and intellectual depth. This book is a valuable account of some of the most important developments in scientific history and it does justice to this complicated subject.

Based on Dick's analysis, I am not sure whether UFO research will ever enter into mainstream science without some sudden revelatory event. In lieu of that, however, perhaps what is needed now is a systematic rethinking of the role of UFO research in relation to the mainstream scientific extraterrestrial life search. While scientists approach the subject from experiment and hypotheses, the disciplines that have the most bearing on UFO research have so far have had little bearing on the extraterrestrial life debate. UFO researchers are increasingly utilizing an array of disciplines like anthropology, sociology, reproductive physiology, neurology, and genetics. Bringing scientists from these fields into the UFO field might be helpful in pushing past the traditional boundaries that have helped define the differences between the emerging discipline of exobiology and UFO research. I think that the two have something to say to each other and new bridges can be built that can be insightful for both areas.

In the meantime, this is a book that should be read and studied by every serious UFO researcher. Dick has provided a treasury of information that could help researchers develop strategies to bridge the gap between two arenas.

DAVID M. JACOBS
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Charles F. Emmons, *At the Threshold: UFOs, Science, and the New Age*. Mill Spring, N.C.: Wildflower Press, 1997. 268p.

Over the years I have tried to describe to non-ufological colleagues what being involved in ufology is like. I have never found a precise metaphor, the closest being the "dual life" suggested by the title of David Jacobs's book *A Secret Life*. Colleagues on scientific committees have been variously sympathetic, curious, or repelled by my interest in this area. I have often thought about writing a book about my experiences, but now there is one. Charles Emmons has done a very creditable job in surveying the scientific community studying UFOs, and Wildflower Press is to be congratulated for adding this title to their list.

Emmons managed to interview 76 of MUFON's scientific consultants (I was one of them), and the activities of those represented by this sample form the core of the book. Emmons nicely sketches the dilemmas, ambiguities, positives, and negatives of carrying out research in this area. While I did not always agree with Emmons's emphases, his research was extensive, and I noted no errors of fact. Emmons also

satisfies those looking for many of the moves and countermoves by the scientific ufologists and their debunking adversaries Emmons includes capsule biographies of 18 ufologists at the end These are meant to be illustrative rather than definitive, so Linda Moulton Howe is included but not Budd Hopkins A problem with Emmons's approach is that he feels obliged to cover some of those advancing arguments, but doesn't see that science includes Budd Hopkins as much as Michael Swords Nor does he make clear that academics have two key resources theory and advanced analytical equipment In fact, one of the key problems with academic ufology is the failure to develop dedicated laboratory facilities that would allow high-quality and consistent evaluation of physical traces He does point out the costs of the amateur quality of most UFO research

Emmons is particularly good at following the texture of the arguments and dialogues between the proponents and debunkers He often surfaces an argument to compare it with the known facts and occasionally with the history of science One would have to give him many points for fairness in the way these arguments are treated, a rarity in the UFO literature He consistently manages to stay above the fray Like Teddy Roosevelt, he often seems at pains to get both sides of the story

Emmons provides a lot of evidence for and against many of the arguments advanced on both sides of the UFO debate While this is interesting and would be valuable for those entering the field, it really expands his brief too much, and lowers the focus on the community of investigators Clearly Emmons has done a great deal of research, and answers many of the questions that one would like to know in approaching this field for the first time

However, I sometimes felt that the major issues got lost in the back-and-forth on some of the points If the ufologists are correct, the abduction phenomenon (for instance) is an urgent situation, whose basic reality should not wait upon academic debates for resolution If, on the other hand, the ufologists represent "pathological science," a phrase coined by Irving Langmuir, then their interest in this subject represents a sociological case study and little more Surprisingly, in terms of the book's calm tone, it would seem that Emmons tends to agree with the ufologists If indeed UFOs are subject to an enormous blind spot for the science community, this is a serious situation, and objectivity, while useful, should take a second seat to intelligent alarm

But along the protoscientific claims is New Age thinking While represented mostly by persons not covered in Emmons's study, New Age beliefs evolved out of the early contactee groups and have begun to affect the mainstream only in the last decade or so While ufologists strive to be recognized by the scientific community, they struggle to shed the association in the popular mind with the New Age groups Interestingly enough, this is very similar to the struggle waged by the SETI community to distinguish itself from the ufologists

This struggle to remain pure on the part of SETI has a lot to do with its failure to link up with ufology The late Carl Sagan, all too eager to interest the public in the possibility of extraterrestrial life and happy to entertain the idea of ETs on earth in

the ancient past, made sure that the public understood that he thought little of ufology and its practitioners. The reason for this distance is that Sagan and other SETI practitioners knew all too well, from the ridicule visited upon atmospheric physicist James McDonald, what waited for them if they deserted their beloved radio receivers and went out into the field to interview witnesses.

Ufology itself has had boundaries that shifted over time, from NICAP's original ban on "little green men" cases (sent to the circular file) to today's abduction research. Emmons sketches some of the work currently going on to maintain these boundaries, including the expulsion of Donald Ware from the MUFON Board for going too far in a religious direction. Ufologists have had to struggle against "the new occultism" within as they have struggled against the scientific establishment without, all too eager to tar them with the occult brush.

By concentrating on individuals, I think Emmons may have missed the importance of collaboration, so important for Vallee and Hynek, for instance, as is evident in Vallee's *Forbidden Science*.

One could wish that Emmons's portrait, which is essentially static, had a stronger historical dimension. Twenty years ago, scientist ufologists were hard to find. The entire community would have fit into a single living room. Today the situation is very different, as the huge turnout for the MIT Abduction Conference showed. Yet the ufologists are still dependent on MUFON, whose "enrollment economy" militates against a tight, scientific focus. The formation of the Society for Scientific Exploration may have forestalled a true scientific organization, like the Parapsychological Association. Although it is not clear what additional pressure toward a scientific discipline might provide, I think absence of such an organization is a clear lack. Failure to provide anything like a textbook, which could be revised annually, I believe also to be a significant lack (though there is Jerome Clark's fine encyclopedia).

Yet the quality of work in the UFO field has gone up, as this journal is evidence. Both the Center for UFO Studies and the Fund for UFO Research have become repositories of knowledge and expertise. The standard of debate is now higher, thanks to more professionals with scientific training.

To sum up, I think Emmons's book is a valuable portrait of the community of scientist UFO researchers and their critics. I believe that Emmons tried to accomplish too much in one book, but no one can deny that he has accomplished a lot.

RON WESTRUM
Eastern Michigan University

John Schuessler *The Cash-Landrum UFO Incident* Houston, Tex. The author, 1998
323p

The December 29, 1980, UFO encounter in Huffman, Texas, is one of the most disturbing and, at the same time, one of the most intriguing reports on record. So a

detailed firsthand account from the primary investigator is a welcome event

As befits his training and background in engineering and futurist studies, the author systematically lays out the facts and includes complete documentation His opening overview "scenario" reconstructing what probably happened on that fateful evening adds still another dimension

Basically, what is proven beyond a shadow of a doubt is that a spindle-shaped UFO, whether experiencing a malfunction or not, descended over the road ahead of Betty Cash's car, exposing her and her passengers to dangerous levels of ionizing radiation An extraordinarily large contingent of helicopters, especially for the holiday season in progress, quickly appeared on the scene and escorted the UFO as it moved away The evidence for this is overwhelming

Obviously—by process of elimination—these were clandestine forces of some sort that had been looking for the UFO Even the follow-up Army Inspector General investigation, thoroughly reported here, was unable to identify the source of the helicopter armada Similarly, the doctors involved directly and consultants like the late Dr Peter Rank, a radiologist, could not account for the symptoms of the victims in any mundane way—and victims they were

The reader is able to follow the story from direct witness testimony, and watch as the investigation unfolds, with its many dramatic turns The progression of the victims' illnesses is reported, with complete medical records and direct testimony from the main doctor Also included are the details of the search for the mystery helicopters, and the search for other witnesses

The final seven short chapters are devoted to the legal battle unsuccessfully attempting to obtain some recompense from the government, which has to rank as one of the greatest miscarriages of justice on record This rebuff came as Betty's health continued to deteriorate, all evidence indicating serious and lasting harm directly resulting from the UFO encounter

An appendix of some 86 pages includes photographs, diagrams, and documents that are central to the case

In his final chapter Schuessler sums up the tragedy

Betty, Vickie and Colby were let down by the Government they loved and trusted They were left to suffer alone, without help or information about their abusers One may only assume that the stakes in the game that the Government was playing were so high that the lives of innocent victims didn't matter

The story is deeply troubling on several levels, and strongly suggests that someone in our government knows a lot more than they are saying about UFOs We are being lied to, even as innocent parties suffer greatly and as the reality of UFOs becomes more and more obvious to citizens directly affected by their presence

This important book deserves to be widely read, especially by potential Congressional investigators and scoffers among scientists and the news media Apparently misled by kooks who attach themselves to the subject, they are overlooking

well-documented and scientific evidence of something extremely important. The implications are profound for all concerned.

One very minor criticism, common to self-published books, is the evident lack of an editor to catch misspellings and typographical errors. The worst of these is the jarring use of "Forward" instead of the proper "Foreword." However, the reporting is of such high caliber and the case is so important that the book deserves to be reprinted by a major publisher.

RICHARD HALL
Brentwood, Maryland

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The *Journal of UFO Studies (JUFOS)* is the official journal of the J. Allen Hynek Center for UFO Studies (CUFOS). The journal publishes a broad range of articles relevant to issues of current interest in ufology. These issues can be addressed through the perspectives and methodologies of many academic disciplines (e.g., anthropology, astronomy, geology, history, medicine and psychology, sociology, and others). *JUFOS* encourages submission of papers from all areas as they contribute to empirical knowledge and theory development in ufology. Articles that review or advance theory, present survey results or experimental findings, provide historical or philosophical perspectives, analyze existing data, or examine tangible evidence associated with UFO cases, are all appropriate for this journal. As one of the largest repositories of data and materials related to the UFO phenomenon, CUFOS may assist authors who are contemplating scholarly works for eventual submission to *JUFOS*.

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Manuscripts should be addressed to Stuart Appelle, Editor, Department of Psychology, State University of New York College at Brockport, 350 New Campus Drive, Brockport, NY 14420-2977. Correspondence regarding submissions (but no submissions themselves) may also be sent to the Editor via electronic mail at the following address: sappelle@brockport.edu

All manuscripts should be submitted in triplicate and must be accompanied by a cover letter containing the name(s), address(es) (including electronic mail address if available), and telephone number(s) of the author(s); the title of the paper; and a statement that the material has not been published and is not under consideration for publication elsewhere. For manuscripts describing research or clinical work with abduction experiencers, the cover letter must also contain a statement that the research adheres to the guidelines described in the 'Ethics Code for Abduction Experience Investigation and Treatment,' *JUFOS*, 5, 1994. Authors have the option of requesting blind review in their covering letter. If such a request is made, it is the authors' responsibility to conceal their identities in the manuscript. In the case of blind review, all author identification and correspondence notes must appear in the manuscript's title page, which will be removed prior to sending the manuscript out for review. Otherwise, manuscripts should include a footnote indicating the address to which reader correspondence should be sent.

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The Editor will preview all articles as to appropriateness of subject, content, scholarship, and format, and may return papers considered inappropriate for this journal. Papers that are deemed appropriate for review will be sent to two or more referees (see Submission section above for blind review). Following this review, authors will be provided with referees' comments and notified by the Editor regarding the manuscript's acceptance, rejection, or need for revision.

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CUFOS maintains one of the world's largest repositories of data about the UFO phenomenon. The material is available for study, research or examination by any qualified individual or organization. CUFOS currently has more than 50,000 cases of UFO sightings and experiences on file, and a library of more than 5,000 books and magazine volumes on all aspects of the UFO phenomenon.

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The Center was founded in 1973 by Dr J Allen Hynek (1910–1986), who became involved with UFOs as scientific consultant to the US Air Force from 1948 to 1968. He was the first speaker to present testimony at the 1968 hearing on UFOs held by the House Committee on Science and Astronautics and later appeared before the United Nations to support the proposed establishment of an agency to conduct and coordinate research into UFOs and related phenomena. In the early 1970s, Hynek coined the phrase "close encounters of the third kind" and acted as technical adviser to director Steven Spielberg on the movie of the same name. He was scientific director of CUFOS until his death.

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