UNIDENTIFIED FLYING OBJECTS:

GREATEST SCIENTIFIC PROBLEM OF OUR TIMES

by Dr. James E. McDonald

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BIOGRAPHICAL DATA: JAMES E. McDONALD was born in Duluth, Minnesota in 1920. He received his B.A. in Chemistry at the University of Omaha in 1942, M.S. in Meteorology at the Massachusetts Institute of Technology in 1945, and Ph.D. in Physics at Iowa State University in 1951. He served in Naval Intelligence in World War II, from 1942-45. From 1950-53 he was Assistant Professor of Physics at Iowa State University, then became a research physicist with the Cloud Physics Project at the University of Chicago, 1953-54. Since 1954 he has been with the University of Arizona, and is Senior Physicist in the Institute of Atmospheric Physics and Professor, Department of Meteorology. He is a member of the American Meteorological Society, American Geophysical Union, Royal Meteorological Society, American Association for the Advancement of Science, and Sigma Xi, and of the National Science Foundation's Advisory Panel on Weather Modification, the Advisory Panel for the U. S. Navy Project STORMFURY (hurricane modification), the National Academy of Sciences Panel on Weather and Climate Modification, and the American Meteorological Society's Publication Commission. Principal research interests: physics of clouds and precipitation. Married, with six children, he lives in Tucson, Arizona.

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A 1966 Gallup Poll reported that 5,000,000 Americans had seen UFOs, and 96% were aware of the term; a higher percentage, it was commented, of public awareness on any issue since the Korean War. Certainly the term, or its more whimsical alternative, "flying saucers," is a familiar one, and almost everyone has an opinion concerning the nature of Unidentified Flying Objects.

Unfortunately, especially for those who happen to witness one, the fact that the earth's atmosphere is "traveled" by these peculiar phenomena is often met with a high degree of ridicule and skepticism. Probably one reason for this is that a lot of noise has been made by citizens claiming, sincerely or not, to have had marvelous and fantastic experiences with spacemen (and women) inhabiting distant planets and commuting to Earth; usually, the "contactees" claim, to save us from nuclear war or to help us advance in our technological and humanistic endeavors. Such claims, if made without a lot of hooplah, may deserve serious examination; but the wilder ones severely distort and obscure the real UFO evidence.

It is also true that much of the skepticism about UFOs is based on our tendency, even in this era of space exploration, to think we occupy a privileged position in the universe -- isolated from travel to (and thus from) other planets, and supremely wise and technologically advanced. As Colonel Lawrence Tacker, former Air Force UFO spokesman, once said, "Technological advances by the United States and Russia heralding imminent space travel for man have already unlocked some of these secrets of outer space. . . . it seems evident that earthmen will visit these faraway neighbors before they can visit us."

We have, of course, increasingly frequent reminders that there remains much to be discovered about the universe. Advances in all the sciences show us ever distant horizons of knowledge. But most of us naturally tend to look closer and harder at the great mass of information at hand than at the great void out of reach, and to rule out what seems incredible; ignoring the fact that often last year's "incredible speculation" is today's commonplace scientific phenomenon. Thus many people, scientists included, think UFOs are nonsense. But they have not examined the data -- because "UFOs are nonsense." When reinforced by U. S. Air Force pronouncements, this attitude is extremely hard to shake.

Science moves forward by testing hypotheses -- intelligent guesses, based on a background of data -- that can be confirmed or falsified. James E. McDonald is a scientist who himself moves forward at a considerable rate. In the past year, he has visited untiringly with dozens of scientific, military, and other professional groups, urging them to realize the necessity for a scientific look at the UFO data. In lectures and broadcasts he has emphasized that (1) thousands of reports leave no doubt that UFOs are real, unconventional objects, and (2) the hypothesis that they are from another planet is a reasonable and (3) a serious one, that can and should be tested.

Until now, this hypothesis has not been tested. For many years, private UFO investigative groups, such as APRO and NICAP, have been seriously collecting sighting reports, building up the background of data. But now that we are surrounded with mountains of data, it is time we examined it. This is what Dr. McDonald has been stressing at his meetings with the USAF Cambridge Research Laboratory, the National Science Foundation's exobiology group, the Naval Research Laboratory, the Westinghouse Research Center, the Los Alamos Scientific Laboratory, the American Meteorological Society, the American Society of Newspaper Editors, the United Nations Outer Space Affairs Group, and many other organizations. I know him as a man of uncompromising scientific objectivity, thoroughly fact-oriented, with a ready wit and sharp mind. These qualities are evident when one observes Dr. McDonald speaking on "the greatest scientific problem of our times."

William B. Weitzel, President
Pittsburgh Subcommittee, NICAP
October, 1967

(Summary of a talk given October 19, 1966, to the District of Columbia Chapter of the American Meteorological Society, Washington, D. C. This is an extension and revision of a short digest, of which a limited number of copies were available at the time of the meeting.)

ABSTRACT: Conclusions drawn from a continuing, intensive study of the problem of the UFOs (Unidentified Flying Objects) were summarized. Although atmospheric phenomena (ball lightning, mirages, scintillation, parhelia, anomalous radar propagation, etc.) have been invoked to account for many UFO reports, such explanations have been seriously misapplied. Specific examples were discussed.

Careful scrutiny of hundreds of the better UFO reports from quite credible observers during the past twenty years (and longer) revelas that not only does it seem altogether impossible to explain them away in terms of atmospheric physics, but also the other officially proposed categories of geophysical, astronomical, technological, and psychological hypotheses fail to encompass the UFO phenomena. Reasons were given for regarding as probably the least unsatisfactory hypothesis that of the extraterrestrial nature of the UFOs. Serious shortcomings in the past official investigations of the UFO problem were discussed, and a radical change in the level of scientific study of the problem was urged.

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One might group past and current explanations of the unidentified flying objects (UFOs) into eight broad categories comprising the following spectrum of hypotheses:

1. Hoaxes, fabrications, and frauds;

2. Hallucinations, mass hysteria, rumor phenomena;

3. Lay misinterpretations of well-known physical phenomena (meteorological, astronomical, optical, and so on);

4. Advanced technologies (test vehicles, satellites, re-entry effects);

5. Poorly understood physical phenomena (rare atmospheric-electrical effects, cloud phenomena, plasmas of natural or technological origin, and so on);

6. Poorly understood psychological phenomena;

7. Extraterrestrial probes;

8. Messengers of salvation and occult truth.

There appears to be general agreement among all who have seriously studied the past 20 years of UFO reports, here and abroad, that Categories 1 through 4 do indeed account for a substantial number of reported "unidentified aerial phenomena." However, when such cases are eliminated, there remains a still-sizable residuum of unexplained reports from credible observers. Categories 5 and 6, to the extent that they constitute explanations in terms of the still-unknown, are intrinsically difficult to handle in logical fashion. Nevertheless, one can attempt reasonable extrapolations from present knowledge and thereby put certain rough bounds on the probable range of present ignorance. Admitting that certain UFO cases may come to be understood in terms of improved knowledge in Categories 5 and 6, I find no adequate basis for accounting for the entire problem in such terms.

I would emphasize that I now regard Category 6 as the only important alternative to Category 7, but discussions of typical cases with psychologists has led to no promising clues in this area. Category 8 is accepted by a distressingly large and vocal group outside the scientific community, but I am not aware that supporters of Category 8 have shed any useful light on the basic problem My own study of this problem has led me to the conclusion that Category 7 now constitutes the least unsatisfactory hypothesis for accounting for the intriguing array of credibly reported UFO phenomena that are on record and that do not appear to fit acceptably into the first six cited categories. Needless to say, the a priori probability of Category 7 appears to be exceedingly low in terms of present scientific knowledge.

My study of past official Air Force investigations (Project Blue Book) leads me to describe them as completely superficial. They have, for at least the past dozen years, been carried out at a very low level of scientific competence as a very low-priority task (one of about 200 within the Foreign Technology Division, Wright-Patterson Air Force Base). Officially released "explanations" of important UFO sightings have often been almost absurdly erroneous. In only a few instances has there been any on-the-spot field investigation by Blue Book personnel, and much of that has been quite superficial. On the other hand, official press releases, statements to Congress, and so on, have conveyed an impression of expertise and investigative thoroughness that has led both the public and the scientific community at large to accept the conclusion that no significant scientific problem exists with respect to UFOs. This impression has, of course, been enhanced by journalistic fun-poking and by the dismaying actions of many cultist groups. It seems to me to be important to secure much more extensive scientific study of the UFO problem, preferably involving not only the Air Force, but other more scientifically oriented agencies. That the official Air Force position has for over fifteen years been one of public assurance of no UFO hostility argues the reasonableness of turning over substantial portions of the UFO investigative problem to science-oriented federal agencies in the near future. The recently-announced "university teams" program is a laudable step forward. Much more effort seems warranted, and agencies such as NASA and NSF should participate actively in the task of rapid clarification of the long-standing confusion over the UFO problem. The work of independent organizations such as the National Investigations Committee on Aerial Phenomena (whose efforts impress me as much more thorough and open-minded than those of Project Blue Book) should be exploited and incorporated into all future studies.

A part of the background to the manner in which Blue Book has handled the UFO problem in the past dozen years is to be found in the complete report of the 1953 Robertson Panel. That scientific panel concluded that there was no strong evidence of any hostile UFO action. The Central Intelligence Agency, represented at the policy-drafting sessions closing the activities of the Robertson Panel, requested that the Air Force adopt a policy of systematic "debunking of flying saucers" to decrease public attention to UFOs. The reasons for this request were associated with the 1952 wave of UFO reports, the largest wave ever recorded in the United States (possibly exceeded in intensity by the French wave of the fall of 1954). So many UFO reports were flooding into air bases throughout the country and other parts of the world in the summer of 1952 that the CIA regarded them as creating a national security problem: In the event of enemy attack on the country, the clogging of military intelligence channels with large numbers of reports of the evidently non-hostile UFOs was regarded as an acceptable hazard. This CIA request, made in January of 1953, was followed by the promulgation, in August, 1953, of Air Force Regulation 200-2, which produced a sharp drop-off in public reporting of Air Force UFO sightings, by forbidding release, at air base level, of any information on sightings of unidentified aerial phenomena. All sighting reports were to be funneled through Project Blue Book, where they have been largely categorized as conventional objects with little attention to scientific considerations. The strictures implicit in AFR 200-2 were made binding with promulgation of JANAP 146, which made any such public release of UFO information at air base or local command level (by any of the military services

and, under certain circumstances, commercial airlines) a crime punishable with fines up to $10,000 and imprisonment up to 10 years. These regulations have not only cut off almost all useful reports from military pilots, tower operators, and ground crews, but even more serious from a scientific viewpoint has been their drastic effect on non-availability of military radar data on UFOs. Prior to 1953, many significant UFO radar sightings were disclosed. Since then, military radar sightings have been scientifically compromised by confusing denials and allusions to "weather inversions" whenever word of radar observations accidentally leaked out in the midst of a UFO episode. Air Force Regulation 200-2 contained the specific admonishment that "Air Force activities must reduce the percentage of unidentifieds to the minimum." This has been achieved.

Illustrating the serious discrepancies between Blue Book classifications and the publicly accessible facts are a number of cases that were discussed in my October 19 talk. These include:

1. "Mirage" explanations, exemplified in the Arnold sighting near Mt. Ranier June 24, 1947, and many other cases ascribed to refraction effects;

2. "Astronomical" explanations such as those put forth in the Exeter, N. H. case of September 3, 1965, the Damon, Texas case of the same date (both subsequently retracted after outside inquiries), the widespread sightings in the Midwest on August 1, 1965, and most recently the Portage County (Ohio) case of April 17, 1966;

3. Anomalous radar-propagation explanations, perhaps best illustrated in the famous Washington National Airport sightings of July 19 and 26, 1952;

4. "Ball lightning" explanations as represented by the Levelland, Texas case of November 2-3, 1957;

5. "Aircraft" and "meteor" explanations in certain cases. Within the limits of time available in the talk, other widely circulated explanations of non-official character were also critically examined.

It is important to stress that there are baffling aspects of the available, credibly reported, UFO cases. It is not possible to offer any pat explanations of the temporal and spatial distributions of sightings. I reject as ill-considered any demands that one now be able to explain "why" the UFOs, if extraterrestrial, so often appear in relatively remote areas, why nighttime observations are more common than those in daytime, why we have no substantial evidence of any "contact" or of "communication," and so on. Intriguing as those questions may be, they immediately plunge one into completely unsupported speculations. The present urgent need is for much more scientific examination of the available UFO evidence in order to establish, or to reject, as the case may be, the very interesting possibility that these aerial objects may be some type of extraterrestrial probes.

NOTES: AFR 200-2 was superseded September 19, 1966 by AFR 80-17.

It was recommended that AMS Chapter members seeking an extensive summary of carefully checked and documented UFO cases should see THE UFO EVIDENCE, Richard Hall, editor, published by NICAP.

UFOs: GREATEST SCIENTIFIC PROBLEM OF OUR TIMES?

(Prepared for presentation before the 1967 annual meeting of the American Society of Newspaper Editors, Washington, D. C., April 22, 1967.)

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SUMMARY - *An intensive analysis of hundreds of outstanding UFO reports, and personal interviews with dozens of key witnesses in important cases, have led me to the conclusion that the UFO problem is one of exceedingly great scientific importance. Instead of deserving the description of "nonsense problem", which it has had during twenty years of official mishandling, it warrants the attention of science, press, and public, not just within the United States but throughout the world, as a serious problem of first-order significance.*

The curious manner in which this problem has been kept out of sight and maintained in disrepute is examined here. Basic responsibility for its systematic misrepresentation lies with Air Force Project Bluebook which, on the basis of firsthand knowledge, I can only describe as having been carried out in the past dozen years in a quite superficial and incompetent manner.

Years of Air Force assurances have kept the public, the press, Congress, and the scientific community under the misimpression that the UFO problem was being studied with thoroughness and scientific expertise. This I have found to be completely false. Illustrative examples, drawn from a very large sample, will be described to demonstrate this.

It is urged that the time is long overdue for a full-scale Congressional investigation of the UFO problem, an investigation in which persons outside of official Air Force channels can put on record the astounding history of the way in which a problem of potentially enormous scientific importance has been swept under a rug of ridicule and misrepresentation for two decades.

The hypothesis that the UFOs might be extraterrestrial probes, despite its seemingly low a priori probability, is suggested as the least unsatisfactory hypothesis for explaining the now-available UFO evidence.

INTRODUCTION

June 24, 1967, will mark the twentieth anniversary of what we might whimsically call the "birth of the flying saucer." For just twenty years earlier, on the afternoon of June 24, 1947, Kenneth Arnold, a Boise businessman flying in his private aircraft, reported seeing a formation of nine disc-like objects skimming along at high speed between him and distant Mt. Rainier. He said that they moved in an unconventional manner "like a saucer would if you skipped it across the water." A reporter who interviewed Arnold after he landed that evening in Pendleton, Oregon, coined the phrase "flying saucers" to add a feature-story twist to an observation that this experienced pilot had told in consternation - and a journalistic era was thereby opened.

As one digs back through the subsequent history of the UFO problem, it becomes evident that a wave of UFO sightings actually began several days prior to Arnold's observation, but it was not until about July 4 that press interest rose exponentially and "flying saucers" were headline news throughout the country. I have recently had the opportunity of reviewing a compilation of UFO sightings for those first few weeks of what is usually regarded as the beginning of UFO observations, a compilation being prepared by T. R. Bloecher for publication later this year, probably by the National Investigations Committee on Aerial Phenomena (NICAP). Although I was already familiar with much UFO history when I began to examine Bloecher's material, I was startled to see the large number of reports of high-speed unconventional objects that flooded into press offices throughout the country in that early period, far more than I had ever guessed. Only a small fraction of the reports were carried by national wire services, so it has been necessary for Bloecher to dig into old newspaper files in many major U. S. cities to unearth the dimensions of that wave of sightings.

I cite this early period as exemplifying much that has happend subsequently, although most of the reports of that period have never been checked as were later cases, so one cannot yet regard the evidence for all the 1947 sightings as conclusive. A mixture of denials led to a rather quick fall-off in news value of the "flying saucers" in late 1947. Hoaxes were headlined with about as much emphasis as were reports from experienced observers. The published reports fell off, and for awhile it appeared that one had witnessed just another "silly season phenomenon," as some newspapermen described it.

But, surprisingly, the UFO reports began cropping up again. Here and there they received press coverage, mostly non-wire coverage in local papers. By 1948, considerably more reports were coming in, and military concern (which had probably never died out) was responsible for establishing an official investigatory project, Project Sign (often loosely called "Project Saucer"). Sign was set up January 22, 1948, with headquarters at Wright-Patterson AFB, within the then newly-created United States Air Force. That date marks the beginning of Air Force responsibility for investigating UFO phenomena, a responsibility it carries to this date. I think it is rather striking that USAF was exactly seven days old when it was handed the UFO problem in 1948.

Project Sign gave way to "Project Grudge" in February, 1949; and, with ups and downs, Grudge continued until about March, 1952, when it was superseded by "Project Bluebook," an organizational entity that survives today, still headquartered at Wright-Patterson AFB. The summer of 1952 brought one of the greatest waves of UFO reports on record, and the first Bluebook Officer, Capt. E. J. Ruppelt, has related (Ref. 1) the hectic efforts of his staff

of about ten Air Force personnel to keep pace with the reports that poured into WPAFB that summer. The famous Washington National Airport sightings of July 19 and 26, 1952, which included CAA radar observations, commercial airlines pilot observations, and ground observations, created the nearest thing to a panic-situation that has ever evolved from UFO reports. After a White House query and numerous Congressional and press demands for an accounting, a press conference was called and the entire series of observations were "explained" as due to anomalous radar propagation and mirage-type refraction events. (I have carefully examined these official explanations and find them entirely inadequate, incidentally.) Although press attention subsided in the face of these assurances, Air Force concern behind-the-scenes continued, and early in the following year a panel of scientists was assembled to review the situation.

THE ROBERTSON REPORT AND THE CIA

The Robertson Panel (chaired by Caltech theoretical physicist H. P. Robertson) met in January, 1953, and reviewed selected UFO reports - apparently about eight in detail and about fifteen others on a briefing-basis. Two working days of case-reviews followed by two days of summarizing and report-drafting constituted the entire activity of this Panel during the period January 14-17, 1953. I describe that Panel's work in more than passing manner because I believe that the Robertson Panel marked a turning point in the history of UFO investigations.

On the first of three visits to Project Bluebook at WPAFB last summer, I asked to see the full report of the Robertson Panel and was given that report by the present Bluebook officer, Maj. Hector Quintanilla. He informed me that he had "routinely declassified" it earlier on the basis of the "12-year rule" covering DOD documents. I made extensive notes from it and discussed its content with Maj. Quintanilla. On my next trip to Bluebook, on June 20, I requested a Xerox copy of the report. The copy was prepared for me, but not given to me because a superior officer suggested that since "another agency" was involved, they'd have to check before releasing it to me. I reminded them that I already had extensive notes on it and that I had already discussed its contents with many scientific colleagues around the country. I was assured that their check was perfunctory and that I would be sent the copy in a week or two.

In fact, I never received it. The "other agency," the Central Intelligence Agency, ruled that this document did not come under the "12-year rule" and reclassified it. Although a so-called "sanitized version" was later released, the full document remains undisclosed. A number of sections of the "sanitized version" have been published by John Lear, who asked for full release but got only the partial version (Ref. 2).

I studied the full version in unclassified status. Military and scientific staff at WPAFB have been fully aware of my possession of this information for months. I have discussed it with many scientists. I regard it as open information in no way bearing on the security of the United States, and I shall now describe its contents here. I urge that press and Congress demand full and immediate release of the entire text of the Robertson Report, including the CIA recommendations which have had such strong bearing on the way in which the Air Force has subsequently treated the UFO problem, so that other scientists can make their own evaluations of the manner in which scientific pursuit of the UFO problem was derailed in 1953.

The scientists comprising the Robertson Panel (Robertson, Luis W. Alvarez, Lloyd V. Berkner, Samuel A. Goudsmit, Thornton Page), on the basis of what I must regard as a far too brief examination of the evidence already in Air Force files as of January, 1953, ruled (first) that there was no evidence of any hostile action in the UFO phenomena. In particular they ruled (secondly) that there was no evidence for existence of any "artifacts of a hostile foreign power" in any of the records which were submitted to them. And (thirdly) they recommended an educational program to acquaint the general public with the nature of various natural phenomena seen in the skies (meteors, vapor trails, haloes, balloons, etc.), the objective being to "remove the aura of mystery" that the unidentified objects had "unfortunately" acquired.

In view of the rather limited sample of UFO evidence which was laid before this Panel, such conclusions were perhaps warranted. The crucial shortcoming was this: There is no evidence that any of these five men had previous extensive contact with the UFO problem. The principal cases they examined excluded some of the most interesting and significant cases already on record (e.g., United Airlines, 1947; Chiles-Whitted, 1948; C. B. Moore, 1949; Tombaugh, 1949; Farmington, 1950; Chicago & Southern Airlines, 1950; TWA Airlines, 1950; Seymour Hess, 1950; Mid-Continent Airlines, 1951; Nash-Fortenberry, 1952; and many other very significant 1952 sightings). And a mere two days of review of the UFO data (prior to going into report drafting session) would not be enough for all the Newtons of science to sort out the baffling nature of this problem. The only scientist present at these sessions who had already examined a substantial number of reports was an associate member of the Panel, Dr. J. Allen Hynek. When I asked him last June why he did not then speak out, on the basis of his then five years experience as chief scientific consultant to the Air Force on UFO matters, he told me that he was "only small potatoes then" and that it would have been impossible for him to sway that eminent group. In reflecting on all that I have learned in my past year's work on this problem, I regard this four-day session of the Robertson Panel as a pivotal point in UFO history. For instead of a recommendation that the problem be taken out of Air Force hands (on grounds of non-hostility of the UFOs) and turned over to some scientific agency for adequate study, there was a most regrettable fourth recommendation made, in addition to the three cited above, a recommendation made at the specific request of CIA representatives present at the final sessions of this

Panel. (CIA representatives listed in the report given to me on June 6, 1966, included Dr. H. Marshall Chadwell, Mr. Ralph L. Clark, and Mr. Philip G. Strong. Top-ranking USAF representative present was Brig. General Garland, chief of the Air Technical Intelligence Command. F. C. Durant and J. A. Hynek were "associate members" of the Panel.)

Whereas the first three recommendations were later disclosed (though not for about five years), the fourth recommendation has never been fully reported in a manner that press, public, Congress, and science can evaluate. However, enough of that fourth recommendation is described in Lear's summary of the "sanitized version" that even persons who have not seen the entire document, as I have, can sense that a minor tragedy of science may have been effected in January, 1953.

The fourth recommendation, made by the CIA, asked for a systematic "debunking of the flying saucers," to use the actual language of the document. And the stated objective of the "debunking" was to "reduce public interest in flying saucers."

Now I wish to make very clear that, on the basis of my examination of the full context of this fourth recommendation, I do not regard this as a dark and sinister action of a covert body trying to deceive the citizenry of the nation. Rather, the reason behind this regrettable decision (that appears to have been acted upon so very faithfully by Project Bluebook ever since) was entirely understandable when seen from a solely national-security viewpoint. The unprecedented wave of UFO reports of 1952, some 1500 just in official Bluebook files alone, tied up Air Force intelligence personnel and intelligence machinery to an alarming degree. Given the scientists' opinion that there was no evidence that the UFOs came from any terrestrial power hostile to the U.S., it seemed to security people to be urgently important to reduce this "noise" that might cover up real "signals" coming into intelligence channels. Hence, viewed narrowly from security viewpoints, it made good sense to get this noise suppressed. It has indeed been effectively suppressed in the ensuing fifteen years.

AIR FORCE REGULATION 200-2

Within a few months after the CIA recommendation was incorporated as the fourth item in the Panel summary, a very important Air Force regulation, AF200-2, was promulgated (August, 1953). This regulation contains the actual wording that "the percentage of unidentifieds must be reduced to a minimum," a goal that has been well achieved. AF200-2 was tied in with another regulation, JANAP-146, that effectively made it a crime punishable with up to ten years imprisonment and $10,000 in fine, if anyone disclosed, at air-base level, any information on any "unidentified." Auxiliary regulations made the other armed services subsidiary to the Air Forces in UFO matters, so that all reports from any military channels were supposed to go to Project Bluebook at WPAFB. Local commands could release to the press or to interested citizens information on reports for which known explanations were available; but all unknowns were to go to Bluebook.

This had an effect that is well known to all who have studied this problem closely. At Bluebook the most outrageously unscientific "explanations" were assigned to important sightings. Cases bearing not the slightest resemblance to feathered creatures were called "birds," and some of the most improbable "balloon" phenomena in all the history of ballooning can be found in Bluebook files. "Astronomical" was tagged onto cases that are no more astronomical than ornithological; and so it went. The "percentage of unidentified" was, by the fiat of scientifically untrained Bluebook officers, steadily "reduced to a minimum." And science be damned.

I could discuss, for hours, specific details of cases reported since 1953 for which Bluebook has given utterly unreasonable "explanations," cases I have gone over in detail and many of whose key witnesses I have personally interviewed. The only non-military person who has had continuing opportunity to examine these cases was the Bluebook consultant, Dr. J. A. Hynek, who has held that role continuously for eighteen long years. I have discussed some of the famous howlers with him and with Air Force personnel. I can only say here that I am quite dissatisfied with such answers as I have been able to secure.

In those Bluebook files have lain hundreds of cases that received no adequate scientific review, that have often been explained away in such ridiculous manner that even amateur astronomers or untrained citizens have publicly complained over the absurdity of the official explanations. And much more distressing have been the many cases in which responsible citizens have, in all good faith, reported significant encounters with unidentified objects at close range, objects defying explanation in conventional scientific or technological terms, only to have the Pentagon press desk release official explanations in terms of "twinkling star" and "inversion," "mirages," "balloon," "refueling tanker," and the like. Such explanations, put out as if they resulted from a careful Air Force check, made the citizens who reported seeing strange objects feel, as one victim put it to me, "like idiots." I truly doubt that Air Force personnel at WPAFB and the Pentagon can have any notion of the bitterness they have created among persons who have been made the butt of ridicule by these "debunking" policies that trace back so clearly to the 1953 decisions.

The net effect, over the years, of such policies and procedures has been entirely understandable. Newspaper editors, not having staff to send out to check even the sightings in their own vicinity in a manner that could be termed scientific, and having no good reason to suspect that the Air Force would be superficially inventing explanations with essentially no scientific content, quickly grew convinced that there must not be anything to the UFO phenomena. Once this conviction was fairly well established, the natural propensities of journalists to prefer writing feature stories

to factual accounts of inexplicable phenomena led to the "funny treatment," and that led to still more ridicule. That, in turn, led the discerning citizen to realize that if he did see a large red, glowing object 100 feet long over a field beside a lonely road at night, with no other witnesses to back him up, he'd better keep his mouth shut. And mouths shut up by the hundreds, as any serious student of the UFO phenomena knows very well through the recurrent phenomena of the disclosure of "hidden UFO reports."

The "hidden UFO report" is one that some person has never related to anyone except perhaps one or two friends or members of his immediate family, until, by chance, he encounters a serious investigator, whose chief goal is not just ridiculing UFO witnesses. Then he may disclose his previously hidden report. I have encountered many hidden UFO reports which the observer had elected not to relate even to members of his own family, so strong has the "ridicule lid" become. NICAP is often the recipient of hidden UFO reports when persons happen to read of that organization's serious efforts to solve the UFO puzzle. It is not surprising that one does not find huge numbers of hidden reports that have been disclosed to Bluebook!

Thus the process grew cumulative in nature. Instead of a flow of corroborative reports with multiple witnesses who saw a given event from various locations (obviously invaluable in scientific analysis of a case), one had a near-stoppage of reports, or else the painfully recurrent situation where one found only a single witness coming forth in an area where the probability of additional observations seemed very high. The "percentage of unidentified" was "reduced to a minimum," and ridicule was one of the potent reductive factors.

Commercial pilots have had bitter experiences with Air Force discrediting of their reports, as for example in the famous Killian case (American Airlines pilot who, along with several other crews on Feb. 24, 1959, saw three UFOs over Pennsylvania). NICAP files and the important NICAP "UFO Evidence" (Ref. 3) have several good examples. The effect, by the late 1950's was clearly evident in the reluctance of airlines pilots to report sightings, a reluctance strongly enhanced, in some instances, by management directives from airlines offices instructing their pilots that they were not under any circumstances to publicly report any unidentified aerial objects that they might see during flight operations. This further reduced the percentage of unidentified in an area of great potential importance.

Another exceedingly adverse effect of AF200-2 has been that radar sightings of unidentified objects cannot be disclosed to press or public by local air base personnel. Radar sightings do leak out in the midst of periods of active sightings, but then the next day official disclaimers usually appear, as in the case of the important Midwest wave of early August, 1965. Radars at Tinker AFB and Carswell AFB reportedly had unknowns at positions compatible with reports from many state highway police in Oklahoma and Texas, as was learned by direct phone calls from the Oklahoma Department of Public Safety in the height of the excitement (Ref. 4). But the following day, the press was told these were due to "inversions" and "electronic malfunctions," as had happened before in such important cases as the Red Bluff, Calif., sightings of August 13, 1960, or the Redmond, Oregon, case of Sept. 24, 1959, or Skowhegan, Me., February 11, 1966, etc. In the August, 1965, Midwest episode, it was interesting that Wichita Weather Bureau radar, unaffected by AF200-2, also tracked many of the unknowns and, like the subsequently denied USAF radar observations, matched ground-visual observations closely. In some cases FAA radar observations have been available to confirm visual sightings; in others, one gets the impression that FAA releases are compromised in some manner not unlike those at Air Force bases.

No single effect of AF200-2 has been as scientifically disastrous as the compromising of the radar data. Here is an already available electromagnetic sensing device, deployed in large numbers throughout the country, which is known to be capable of detecting UFOs. This latter assertion is fully justified by the pre-1953 disclosure of many Air Force radar observations of high-speed objects for which no adequate explanations were ever given. Indeed, one of the problems that was repeatedly mentioned in the Robertson Panel report (see Ref. 2) was the "fast-track" problem, which clearly bothered both CIA and Air Force in 1953. And well it should, as one can readily learn for himself by reading Ruppelt's book (Ref. 1), or the long summary of radar sightings of objects tracked at multi-thousand-mph speeds as listed by NICAP (Ref. 3). A more recent case, that I have personally checked on, occurred at Patuxent River Naval Air Station on December 19, 1964, when two unidentified objects were tracked at speeds of over 7000 mph. Whereas the Navy released a statement attesting to the experience of the radarman and whereas the operating personnel stated that the set was not malfunctioning, Air Force spokesmen told Sen. Harry F. Byrd, who queried the Air Force on the case, that an inexperienced operator was on duty and the set was not working properly (Ref. 5).

And not only have American radars tracked high-speed objects executing maneuvers defying explanation, but so have radars of other countries. To cite one such case, South African Air Force radar tracked an object making repeated passes at speeds of 1000 mph over the Cape on May 23, 1953, under conditions that led the government to declare it officially unknown, a status that they have recently reconfirmed. In addition, there are on record, both in USAF files and elsewhere, many cases of combined visual and air-borne radar sightings by military and commercial aircraft. The famous Rapid City, So. Dakota, case of August 12, 1953 (Refs. 1, 3) could serve as a good example of unexplained Air Force sightings. After a UFO was spotted by a member of the Ground Observer Corps on night duty, two F-84's were vectored in to the location of the object, which showed on GCI ground-radar. Both

pilots got airborne radar lock-ons and also saw the glowing object visually, but could not close on it. Many more such cases can be cited, but not after August 1953 when AF200-2 shut down further disclosures of military sightings.

Citation of foreign radar sightings above leads to the inevitable question of why foreign governments have not conducted independent studies of the UFO problem. There seems absolutely no question but that the UFO phenomenon is a global phenomenon, so why haven't England or France, or Australia, dug into this problem? I have no final answers, but I asked a French UFO investigator, Dr. Jacques Vallee, about the French situation in particular. He explained that whenever French investigators of the UFO problem made any appeal to their government, they were told that the United States Air Force had been carefully studying that problem for years and had shown that there is nothing to it! I am told that the situation in Australia is not dissimilar. Is it conceivable that AF200-2 has succeeded in reducing the percentage of unidentifieds not only here but all over the world? I strongly suspect so, though that is an inference I could not prove, only make plausible by many examples.

Air Force Regulation 200-2 was given a new number a few months ago; it is now called AF80-17. The only significant change was to permit the University of Colorado to gain access to airbase-level information on unidentifieds. Let us hope that this single important alteration will soon pave the way to clarification of radar sightings by military radar systems. But for fifteen years, 200-2 has been a most effective barrier to free disclosure of precisely that type of observational data that would have gone farthest toward arousing scientific concern for the UFO problem - the radar sightings. Much more can be said about the radar problem, but here the blockage effect of the "debunking order" that led to 200-2 has been the point of principal interest.

1953 REVISITED

Looked at in retrospect, and viewed against the large volume of unexplainable phenomena reported outside of military channels since 1953, the recommendations made by the five scientists who comprised the Robertson Panel seem most regrettable.

Are they to be faulted for their actions? I think not. The cases they reviewed were selected by someone else, presumably Air Force intelligence officers, or possibly CIA representatives (though I stress that I doubt this and know of no evidence indicating that the CIA then maintained, or now maintains, any scientific scrutiny of the details of the UFO phenomena). I feel entirely certain that if I had no prior knowledge of details of UFO cases and were suddenly asked to make a recommendation based on a mere three days' look at UFO cases, I would not end up describing them as the greatest scientific problem of our times. One might, however, wish that the Panel members had asked for a better chance to review more cases; and one can surely ask whether non-hostility didn't argue need for getting the whole problem out of the mainstream of our military intelligence channels and into some primarily scientific channels where the problem could have been more adequately examined.

The latter suggestion was, unfortunately, not made by the Panel. Probably these were busy men who thought the whole business had actually been well checked out by Air Force personnel and Air Force consultants. Perhaps they were reluctant to accept as scientifically significant observations made outside the scientific laboratory. Perhaps there were other considerations.

But at any event, January, 1953, brought a marked turn of events. Bluebook operations under Capt. E. J. Ruppelt seemed to have been heading in 1952 towards some kind of systematic investigation methods that might have brought the whole problem out into full glare of scientific light. But after 200-2 came out in August, 1953, and Ruppelt left the Bluebook staff shortly thereafter, a true period of "dark ages" began at Bluebook. Plenty of good reports kept coming in, as one can easily see by going over those files. But contrived "explanations" became the order of the day, and debunking to reduce public interest in the flying saucers went on apace. Organizations such as NICAP attempted to force the problem out into the open, but their efforts were treated by Air Force personnel as if they amounted to crackpot activities, a viewpoint which I found rather well established in Air Force circles when I began an intensive examination of this problem in April, 1966. Whether this attitude has since altered appreciably behind scenes, I cannot say. I might note, however, that I have repeatedly stated to Air Force personnel concerned with the UFO problem that the NICAP investigations since its founding in 1958 are far superior to those of Bluebook, and I wish to repeat that assertion here. It is based on a great deal of first-hand experience and on the basis of careful examination of many cases investigated by NICAP and Bluebook, respectively. Prior to June, 1966, I had no first-hand knowledge of either NICAP or Bluebook. By July, 1966, it had become very clear that Bluebook has been operated on an almost incredibly non-scientific basis, whereas NICAP's work merits high praise, especially when measured against the shoestring budget on which they have operated.

THE CONSPIRACY HYPOTHESIS

I must comment next on one very intriguing aspect of the give-and-take between the Air Force and groups such as NICAP, namely the question of the "conspiracy hypothesis." Among those who have done a substantial amount of checking of UFO reports, there invariably develops great concern over what I term the "coverup versus foulup" controversy.

Some feel, on the basis of considerable knowledge of UFO history, that there are so many well-documented instances in which Air Force personnel have obfuscated in their

handling of UFO cases that there must be a grand conspiracy, a high-level coverup of some sort. NICAP, and especially its Director, Major Donald E. Keyhoe, have cited dozens of instances that seem to suggest such a high-level coverup. I have to confess that I am not able to rebut these individual cases with specific information; I agree that, on the face of it, many past actions do seem to suggest a pattern of almost conspiratorial coverup. But, at present, I cannot subscribe to the grand-coverup hypothesis.

I do not believe, as do some UFO investigators, that the CIA or still higher security groups "know all about the UFOs," know that they are of extraterrestrial origin, and are concealing this from both the public and science. Rather I have seen a large amount of evidence, much of it compelling in its nature, that leads me to reject the grand-coverup hypothesis. I believe it is instead a grand foulup, accomplished by people of very limited scientific competence, confronted by a messy and rather uncomfortable problem. (What air force officer, American, British, Russian, or Chinese, would care to admit that in his country's airspace there are maneuvering objects of unknown nature far exceeding in performance characteristics anything his friends are flying!) I have told Air Force personnel quite directly that I think it's a foulup, not a coverup, and until I see new evidence to the contrary I shall subscribe to this view.

As a result of close scrutiny of the operating methods of Bluebook, after seeing at firsthand how little scientific expertise has been utilized at Bluebook, and after finding no one in any Air Force office that I have visited who exhibits any appreciable knowledge of the full history of the UFO problem, I have slowly formed my own picture of what has probably happened in this long-standing coverup vs foulup controversy. I sense that groups like NICAP who have been assiduously investigating the UFO problem over the years have been incapable of imagining how incompetently the problem was actually being handled within the Air Force. They could only imagine that everything they knew was surely also known to Bluebook investigators, and that all those spurious explanations defying elementary scientific principles could only be the efforts of not-too-careful officers assigned to put out the coverup propaganda.

But after seeing what has gone on at Bluebook, after talking with higher-echelon personnel at WPAFB who were almost unaware of what was being done in the 3-man (major, sergeant, secretary) operation, and after being assured in the most convincing manner that Bluebook has been an extremely low priority project (one of about 200 in the Foreign Technology Division of WPAFB where it has lain in recent years), I form a very different picture. My picture of all this is no cloak-and-dagger conspiracy, no effort to prevent public panic over the "real nature" of the UFOs, no front organization named Bluebook concealing a higher-level investigation of the UFOs. Instead I see just one incompetently and superficially investigated case after another swept under the rug.

Bluebook, without conspiratorial finesse, has succeeded in hoodwinking us all. One of their most successful tactics might be called the "five-day delay." After an important sighting that has somehow made the wire services (many of us wonder how it is that certain cases make the grade while so many others go unnoticed), Bluebook and the Pentagon press desk just wait. Then, when press interest has gone through its characteristic half-life of about two or three days, they put out some "explanation" and add solemn assurance that the Air Force has investigated such and such a number of cases in the past ten years and of these such and such a tiny percentage have been regarded as unidentified, and the public and the editors shrug their shoulders once again, forget the sightings, and decide there sure must be a lot of nuts in the country to be reporting such outlandish things when the Air Force keeps on dutifully checking them and finding them all due to twinkling stars and meteors. It works. As editors, ask yourselves if it doesn't work!

And all the time groups like NICAP, having diligently dug out the facts, usually in far more detail than has Bluebook or its consultants, are left wondering how such atrocious official explanations could be palmed off on the public unless...and their suspicions that there must be a top-level coverup grow and grow. I believe that this, combined with inherent tendency for military personnel to play it safe and play it classified when in doubt about an uncomfortable situation, has generated the suspicions of a well-designed conspiracy. When jets are scrambled to try to follow a UFO, and all is later denied, I think it's just some colonel playing it safe. I do not, in my rejection of the hypothesis, fault those who have been driven to it by some faint faith in the image of scientific expertise so diligently shaped by innumerable Press Information Officers at the Pentagon and elsewhere. But in the area of the UFOs, that image appears to me to be a completely false image, almost laughably false. The United States Air Force most assuredly has a lot of top-notch scientific talent at its disposal. It just hasn't used any of it on the UFO problem for at least fifteen years, as far as I can see.

I have often wondered if perhaps the PIOs at the Pentagon press desks actually believe that, with all the engineering and scientific talent that can be found up at Wright-Patterson AFB, Bluebook must have a lot of that talent, too. This, at least, might explain how the Pentagon desk has dutifully passed on to a sometimes howling-mad local citizenry "explanations" of the most patently senseless nature in recent years. I might add that one additional strong argument against the high-level coverup hypothesis is the very ineptitude of Bluebook "explanations." If CIA and USAF really wished to conceal the UFO, they could very easily have assigned to the Bluebook office clever, scientifically trained officers who could have contrived sensible rather than absurd "explanations." This has clearly not been done. Finally, were there some frantic

effort on the part of CIA and USAF to plumb the secret of the UFOs, NICAP and even a person who has done as much checking of strong cases of close-range sightings as I have done, would surely run into many cases where the key witnesses had been carefully interrogated by trained personnel out to get every last shred of evidence from a strong case. Quite the opposite situation prevails: Again and again one finds that even when key witnesses risked ridicule and reported a case to Air Force channels, no investigation of any kind was conducted. Let me cite a single example that I checked just last week.

A report in the latest NICAP bulletin (Ref. 7) indicates that: *"A UFO over the United Nations in New York City was reportedly seen on November 22, 1966. Witnesses included at least eight employees of the American Newspaper Publishers Association, who watched from their offices on the 17th floor of 750 Third Avenue at 4:20 P.M. on a bright, sunny day. The UFO was a rectangular, cushion-shaped object...(which) came southward over the East River, then hovered over the UN Building... It fluttered and bobbed like a ship on agitated water."* Witnesses mentioned were D. R. McVay, assistant general manager of ANPA and Mr. W. H. Leick, manager of the ANPA's Publications Department. I telephoned the ANPA offices and spoke at some length with Mr. Leick about the sighting. He confirmed that eight or nine persons were out on the 17th floor terrace watching the object hover over the UN Building for a number of minutes as it rocked and reflected the sun's rays with a golden glint before rising and moving off. I asked Leick if they reported it to any Air Force channels, and he said that A. A. LaSalle called a New York office of the Air Force and was assured that an officer would be in the next day to interview them. But no one ever came. This is indicative of the diligence with which the Air Force is seeking out the last bit of evidence about UFOs. Over a half dozen responsible witnesses see an unconventional object hover over midtown Manhattan, they tell the Air Force, and it yawns! Leick added that they also phoned a New York newspaper "which shall go unnamed," but "they weren't interested." It got to NICAP almost by accident, and NICAP sent up their standard witness-questionnaires which Leick said they all filled out as carefully as they could.* If this were an isolated instance, it might be amusing; it is all too typical, unfortunately. So I don't see the earmarks of a frantic race against time to secretly solve the enigma of the UFOs.

*Incidentally, my phone call to Leick illustrated another point - it turned up one more of the many "hidden UFO reports" I have received. Leick and his wife, driving at night on the Ohio Turnpike several years ago, had seen a luminous, unconventional object with a circular array of lights. After hovering about 5 minutes, it took off in an oblique climb at very high speed. "I've never seen anything that fast," Leick told me. He had never reported it, having no desire to be ridiculed for his observation, he explained.

If my view is wrong, if there is a high-level coverup, then I am going to be one of a very large number of scientists, both within this country and outside it, who are going to want to hear some fast explaining as to how a scientific problem of the potential interest of the UFO problem could be regarded as the legitimate domain of deception-operations unparalleled in previous history. But, to repeat, I just don't believe there have been such operations. (In a recently published book [Ref. 7], L. J. Stanton also rejects the "conspiracy hypothesis," but for reasons which seem to me to reflect incomplete knowledge of the facts of the case. Stanton's book can be recommended as a generally sound analysis of the history of the UFO problem and the shortcomings of the official investigations.)

Thus, it's not the UFOs but the Air Force investigation that is the big joke, as I now see it.

On June 7, 1966, at the end of my first visit to Bluebook, and after incredulously pouring over perhaps 150-200 cases selected at random from the Air Force UFO files, I stated to Brig. Gen. Arthur W. Cruikshank, Jr., commander of the Foreign Technology Division at WPAFB, that when the full picture gets out as to how the Air Force has mishandled the UFO problem, "the Air Force will look very, very sad." I still regard this prediction as sound, ten months later. Gen. Cruikshank's response was laudable. He put three officers onto the task of carrying out a quick review of Bluebook. I extended all possible cooperation to that trio of officers last summer, and then I heard no more. I subsequently found that Gen. Cruikshank (who seemed to be quite interested to hear a real live scientist in his office saying that there might be much more to the UFO problem than had ever met the Air Force eye) was transferred to another command on the West Coast as part of a routine shift of personnel. Therein one sees one more facet of the Air Force problem. No one has ever stayed with this problem long enough to sense its true dimensions. There have been a half dozen Bluebook officers since Ruppelt. None seems to have had any appreciable scientific background. Only the chief scientific consultant has been present over the whole eighteen years, and until recent months, Dr. Hynek seems not to have taken very seriously the enormous volume of important reports that one finds packed into the huge files in the Bluebook office. And so years have slipped by and the UFO problem is still with us. Worse yet, credible UFO reports of close-range sightings are on the increase, and this despite the "ridicule lid" which callous Air Force discrediting has imposed.

SCIENTISTS' VIEWS ON UFOs

Having suggested that press and public have been misled by the CIA-requested debunking that Bluebook has carried out in the past dozen years, it is next in order to ask why scientists have not seen through the misrepresentations. Certainly at this writing one would be rash to suggest that more than a few per cent of the country's scientists take the UFO problem seriously. If the true percentage is

larger, then I can only say that most of the supporters are keeping themselves very well concealed. By contrast, those who scoff at the UFOs as a lot of nonsense or as an expression of the human need for miracles or as the mistaken observations of untrained laymen are both numerous and vocal.

In seeking an explanation of this pattern, one must again lay primary responsibility on Air Force Project Bluebook for having left scientists with no reason to doubt that the problem was being very thoroughly investigated. Scientists are busy people, always have more to do than they have time for, and when they read in the papers that Bluebook has explained away all but a tiny percentage of reports and that, for most of those, explanations could probably have been found had there been more adequate information, they are not likely to pursue the matter farther. Scientists, like Congress and the public, had no reason to suspect that all those Pentagon reassurances were baseless, so most of them ignored the problem.

Others, unfortunately, without any first-hand knowledge about the actual UFO evidence and without any personal examination of a substantial number of UFO reports, have felt free to speak ex cathedra that "people have a need for miracles, so what's more natural in a scientific age than scientific miracles," and so on. Many, seeing the highly visible cultist and crackpot fringe of believers in UFO space messengers have baselessly assumed that this was the entire picture. Others have simply opined from their armchairs with scarcely any knowledge of any sort, just speaking from scientific orthodoxy at its worst.

In NICAP and in other similar groups such as APRO (Aerial Phenomena Research Organization), there has been a modest number of scientists who have followed the UFO problem with some interest, though none seems to have pursued the matter as a full-time effort. None could be rated at Nobel prize-winning caliber, none are leaders of American science, I suppose; and most have been reluctant to speak out on the basis of their personal knowledge, though they have suspected that scientific values were being ignored in the neglect of the UFO question. I was, myself, in roughly that last category until I decided, a year ago, to try to make an intensive study of the problem and see if there really was anything to all those reports that seemed to keep cropping up. Despite almost a decade of intermittent checking of local UFO reports near Tucson, I had seen too few instances of strong cases to feel free to extrapolate very far. I was entirely unprepared for what I found almost immediately upon making a personal check of NICAP's operating methods and case files, and upon doing the same at Bluebook. I feel sure that my reaction will be paralleled by that of many other scientists just as soon as they can be persuaded to personally look into the actual nature of the UFO evidence in detail. To get them to do so, I am finding, is not as easy as one might hope.

I might say that I have never met a scientist who has made what I could regard as an adequate investigation of the UFO problem who is at all inclined to sneer at the problem. If I did find one, I would be extremely interested to hear his arguments.

There is one scientist who has written and lectured a great deal about UFOs, and who has certainly looked at a lot of cases without being convinced that the UFO problem involves anything of great scientific interest. That is Dr. Donald Menzel, former Director of the Harvard College Observatory. Dr. Menzel has published two books on the UFOs, both aimed at explaining UFOs chiefly in terms of misinterpreted meteorological and astronomical phenomena (Refs 8, 9). I am deeply puzzled by those books, especially the more recent one.

My puzzlement stems from realizing that Dr. Menzel's background in physics and astronomy is well-attested by his authorship of a number of texts and references in those areas. Despite that background, when he comes to analyzing UFO reports, he seems to calmly cast aside well-known scientific principles almost with abandon, in an all-out effort to be sure that no UFO report survives his attack. Refraction processes are quite well understood in optics, and the refracting properties of the atmosphere are surely as familiar in astronomy as in meteorology, if not more so. Yet in "explanation" after "explanation" in his books, Menzel rides roughshod over elementary optical considerations governing such things as mirages and light reflections. For instance, the interesting observation made by Dr. Clyde Tombaugh, in August, 1949, who along with two members of his family saw a puzzling array of pale lights move rapidly through their zenith sky in Las Cruces, New Mexico, and disappear into the southeastern sky, is casually attributed by Menzel to "reflections of ground lights against the boundary of an inversion layer in the air." The difficulty that these lights were rapidly moving in orderly fashion across Tombaugh's sky Menzel explains (Ref. 9, p. 269) by asserting that it was produced by "a ripple in the thin haze layer." That is, "this ripple, tipping the haze layer at a slight angle, could have reflected the lighted windows of a house; as the ripple progressed in a wavelike motion along the layer, the reflection would have moved as did the rectangles of light." Now this might go down with a layman, but to anyone who is at all familiar with the physics of reflection and particularly with the properties of the atmosphere through which generations of astronomers have successfully watched a large number of astronomical events, the suggestion that there are "haze layers" with sufficiently strong refractive index gradients to yield visible reflections of window lights is simply absurd. But, in Menzel's explanations, light reflections off of atmospheric haze layers are indeed a sight to behold. This, I say, I simply do not understand, since one is not dealing here with some subtle shade of opinion. Such a near-normal reflection process just does not occur in our atmosphere - and no one should know this better than an experienced astronomer.

Refractive distortions of stellar images are a familiar source of trouble to astronomers,

and the circumstances governing these distortions are rather well known. Certainly the order of magnitude of refractive displacement and oscillations are extremely well known. Yet Dr. Menzel speaks in detail (Ref. 9, p. 61) of a "mirage of Sirius" which he, himself, reportedly observed while flying in an Air Force aircraft in the Arctic, in which refraction effects are supposed to have enlarged Sirius to an apparent angular diameter of about 12 minutes or more of arc (equivalent, he asserts, to a sphere a foot or two in diameter at a distance of 300 feet). Just how refractive index gradients with the axial symmetry necessary to enlarge a stellar image into a circular disc of such relatively enormous diameter could ever develop within our atmosphere, Arctic or otherwise, is not hinted by Menzel, nor does he confront the puzzle of how, as he flew along, his steadily changing optical path always provided him with this kind of a refractive index pattern of axial symmetry despite looking through steadily changing airpaths! But having made his point, he uses it as the basis of discounting UFO sightings by experienced pilots who, he indicates, repeatedly see refraction phenomena of just the same type. This is nonsense.

The important Nash-Fortenberry sighting of July 14, 1952, in which the pilot and co-pilot of a Pan-American DC-4 observed six red-glowing disc-shaped objects maneuver at high speed and in unconventional manner below their plane over Chesapeake Bay, is readily explained by Menzel (Ref. 9, p. 256 ff) as searchlights hitting an "inversion layer." He speaks of what "a thorough study of the situation showed," but as one reads along, it becomes clear that all of his arguments apply only to formation of the familiar nocturnal inversion layers that hug the earth's surface. Yet the two experienced Pan American pilots distinctly describe (and Menzel's book, p. 258, reiterates this) the way in which the observed luminous objects "abruptly began a steep climb to an altitude above that of the plane," an appearance quite out of question for an hypothetical searchlight shining on an hypothetical inversion layer near the earth's surface. But many other details of the sighting, clearly stated by Nash and Fortenberry, such as the sharp-edged nature of the glowing discs, and their impressive formation-holding maneuvers, are glossed over in Menzel's inversion-layer explanation. Such easy neglect of salient features of the cases he treats marks many other examples that could be cited.

Menzel's explanation of the famous Chiles-Whitted sighting is another excellent illustration of his methods of argumentation. An Eastern Airlines DC-3, piloted by Capt. C. S. Chiles with J. B. Whitted as second officer, encountered a high-speed rocket-like glowing object approaching them out of the northeast in the early morning hours over Montgomery, Ala., on July 24, 1948. The object was described as having a length of over 100 ft and thickness twice that of a B-29 fuselage; it had something resembling blue-glowing ports and a fiery wake streaming from its aft end; and just as it passed the aircraft, rocking the DC-3 as it did so, it pulled upwards into a steep climb and passed out of sight through the broken cloud deck overhead. All of these details are on record with the Air Force and are recounted in Menzel's book (Ref. 9, p. 108). Menzel suggests that this was a fireball (intensely bright meteor). He glosses over the reported rocking of the DC-3, and completely ignores the un-meteoric pull-up and vertical climbout. But what is most difficult to understand, from an astronomical point of view, is that he goes on for several pages indicating that since that incident occurred near the time of the Delta Aquarid meteor shower, these pilots were fooled by a fireball from this shower. Now first of all, few showers have meteoroids large enough to reach the fireball class (brighter than -5 magnitude), and the Delta Aquarid stream is not one of the showers noted for this. But much more surprising is that Menzel clearly failed to check his computations of the position of the shower radiant, for had he done so he would have found that the Delta Aquarid radiant was at culmination about 40° above the southern horizon, whereas the Eastern Airlines DC-3 was heading towards the northeast. Had Chiles and Whitted seen an Aquarid meteor in the skies ahead of them, it would have given the appearance of moving in the same general heading as their plane, whereas all accounts, including Menzel's own version, describe the huge glowing object as coming directly towards the aircraft! Thus there is a clean-cut error of about 180° in Menzel's Aquarid meteor explanation. But Menzel closes his pat discussion of this case (Ref. 9, p. 112) with the statement that "...there can be no doubt that Chiles and Whitted misinterpreted the appearance of an unusually brilliant meteor..."

The phenomenon of anomalous propagation of radar within layers of strong gradients of humidity and temperature is well understood. To determine whether significant beam-refraction can occur, one consults radiosonde data to see just what index gradients prevailed. Menzel discusses a number of UFO reports in which he invokes anomalous propagation, but in no instance does he present evidence that he has examined any quantitative aspects. With qualitative arguments, false arguments are easily built up; quantitative considerations are what one finds almost non-existent in Menzel's disposal of UFO sightings. In some instances, he attributes airborne radar echoes to phenomena which are unknown to military pilots and unexplainable in terms of meteorology and physics. For example, in the important Port Huron, Michigan, case of July 29, 1952, ground radar detected a high-speed unknown and then the radar in the nose of one of the F-94's vectored into the unknown picked up an echo and locked-on; finally the pilot himself saw a fast-moving glowing object in that location. Menzel (Ref. 9, p. 160) easily explains the visual effect as the star, Capella, and the ground-radar fix and radar lock-on he explains away as "phantom returns caused by weather conditions." Evidently he did not examine the available radiosonde data for that date and area, as I did, for there was absolutely no chance of anomalous propagation causing false ground-returns on the ground-based radar that originally picked up this fast-moving and oddly maneuvering target. But still more perplexing is his suggestion that the airborne lock-on by

the F-94 was due to "weather conditions." Index gradients adequate to give appreciable super-refraction or subrefraction are unknown in the free atmosphere. Still more significant, is that one cannot get a return even with powerful index gradients unless there is some solid radar-returning object in the bent beam. Near the earth's surface, it is ground objects of one sort or another that provide these false targets of solid nature; but aloft there are no such solid objects lying around to throw back a spurious echo. The result is that "ground returns" are entirely unknown aloft, and one need only ask an experienced Air Force pilot to confirm that Menzel is here (and in other similar cases such as the outstanding B-29 case over the Gulf of Mexico, December 6, 1952, discussed on p. 5 of Ref. 9) invoking a phenomenon that just does not occur.

Many other such examples of loose reasoning, failure to check the relevant weather data, and casual neglect of key features of the reports could be cited. He speaks (Ref. 9, p. 179) of the "freak weather" and of severe electrical activity near Levelland, Texas, on the night of November 2/3, 1957, when observations by 10 independent witnesses were made within a two-hour period of a large luminous egg-shaped object that hovered over fields or roads and stopped ignitions of engines in eight or nine vehicles. Having asserted, without documentation, that there was severe lightning in the area, he goes on to say that the objects, estimated by various witnesses at from 100 to 200 feet in length, were just "ball lightning." And wet ignitions stopped the cars.

The fact that the engines could be restarted just as soon as the object darted off would, of course, be entirely inconsistent with wet ignitions; but that feature of the observations is ignored. Worse, the actual weather data for the night and locale in question are ignored. I dug out the weather maps and rainfall data. A large high-pressure area was moving southward over the Texas Panhandle, completely antithetical to convective activity and lightning of any sort - and a check of half a dozen stations in the vicinity revealed that there was not even any rain falling during this period, nor had more than a small amount fallen hours earlier that day when a cold front went through.

The Air Force offers the same absurd explanation of the Levelland UFO reports, incidentally, and Dr. J. A. Hynek, who was involved in formulating the Air Force explanation of this one, has stated to me that this explanation was a bit "unfortunate." The Levelland case affords an excellent illustration of how the press has been used by the Air Force in its "debunking" efforts. The Levelland case, plus several others elsewhere in the Southwest on the same night, were headline news all over the country on November 3 and 4, 1957. No response came from the Air Force for another four days, long enough for editorial interest to wane a bit. Then an Associated Press dispatch of Nov. 7, 1957, reiterated the usual: "The Air Force says its investigations of 5,700 reported sightings of flying saucers in the past 10 years have produced 'no physical or material evidence' that such things exist." In the *Tucson Daily Citizen*, that dispatch was headed "5700 Duds." Turning the page from Menzel's disposal of the Levelland case, one finds him re-using the ball lightning explanation to account, on the next page, for another case, the Loch Raven Dam case of October 26, 1958. He ignores completely the point that here, too, the car engine was stopped, but the witnesses' report of a large luminous object, estimated at 100 feet or so in length, hovering over a bridge structure, he attributes to more ball lightning. To make the latter seem to fit better, he refers to the object as a "ball," despite the witnesses' remarks that it looked much like "a Navy blimp" (Ref. 10, p. 192). Also ball lightning is a luminous mass only a foot or two in diameter, so how Menzel feels it can attain a size of 100 ft is far from clear. But the real irrelevance of the entire "explanation" emerges only when one runs down the weather map for the day in question and finds that a large high-pressure area sat over the East Coast, precluding anything like the kind of atmospheric electrical activity so casually invoked by Menzel.

I could easily go on at much greater length with specific objections to Dr. Menzel's methods of explaining UFO cases, but the above should suffice to suggest the nature of my strong objections to his writings on this subject. I simply do not regard them as substantial scientific analyses of the UFO phenomena. I believe they should be ignored.

However, they have not been ignored at all. One can find references in the writings of other scientists who cite his work as the authoritative analysis of the UFO problem, and I can only presume that those others who have accepted his conclusions have not examined the actual details of his arguments, for the latter just will not withstand close scrutiny. In my opinion, and in the opinion of a number of others familiar with the UFO problem, Dr. Menzel has had a baleful influence on scientific progress towards solution of the puzzle of the unidentified flying objects. I believe that Bluebook officers have patterned many of their "twinkling star" and "fireball" explanations after those to be found in Menzel's books - and perhaps one can only say that for officers with very limited scientific background to take his writings as reliable was not unreasonable, in view of his prestigious affiliations and his past publications on many scientific topics. But the latter considerations notwithstanding, his writings on the UFO problem are, in my opinion, scientifically unsound. The sooner a large number of other scientists take a close look at the astonishing nature of his analyses, the sooner they will be put aside as having no real relevance to the solution of the UFO mystery.

Recently another writer has launched an attack on the UFOs in a manner bearing many resemblances to Dr. Menzel's approach. Whereas Dr. Menzel feels that optical effects probably explain the bulk of the UFO reports, Philip J. Klass, of the *Aviation Week* staff, has attempted to argue that essentially all UFO reports can be accounted for in terms of plasma phenomena associated with corona discharges on power lines or ball lightning (Ref. 11). Like Menzel, he sidesteps quantitative considerations. Also like Menzel, he rather freely ignores many salient features in the reports of witnesses who have seen unidentified objects, or else freely twists them to fit his own interpretations. Finally, I believe he has ignored most of what is known about ball lightning. This still leaves open the likelihood that a few UFOs out of the thousands that have been reported were corona phenomena or ball lightnings, but Klass' efforts to explain the whole problem away with plasma-type phenomena cannot be taken seriously. I have discussed his approach with several colleagues active in the field of atmospheric electricity, several of whom have had personal exchanges with Klass, just as I have, and all share my rejection of his main arguments.

Ball lightning, to be sure, is a very poorly understood atmospheric phenomenon. But if there are any workers in atmospheric electricity who hold, as does Klass, that ball lightning can be generated without presence of intensely active thunderstorms, I have failed to uncover such viewpoints in a recent extensive review that I have carried out on the ball lightning problem, thanks to Klass' prodding. Klass has cited a half-dozen cases of clear-air lightning as if this somehow proved his contentions, but none of those cases sounded like what is normally termed ball lightning. He ignores the fact that ball lightning reports involve luminous plasmoids of diameter seldom exceeding a few feet, usually about the size of a basketball or smaller; instead he feels willing to say that objects reported as having diameters ten to a hundred times larger are "ball lightning."

Cases like the interesting Red Bluff, Calif., sighting of August 13, 1960, where two California Highway Patrolmen stood less than a hundred yards from an object of metallic luster estimated at about a hundred feet in length, with huge lights on it, or the well-reported Exeter case (Ref. 14) of Sept. 3, 1965, could not, by wildest stretch of any reasonable scientist's imagination, be attributed to ball lightning - and the more so when one notes that the weather conditions were so stable that the official Air Force explanation used that circumstance to try to blame each of those cases on inversion-refraction of stars. Nor could dozens of other sightings, many made under daylight conditions with perfectly clear skies, where the observers reported solid, metallic-looking objects moving rapidly in the free atmosphere (far from Klass' corona-producing power lines and defying reasonable explanation as "ball lightning").

I know of no atmospheric scientists who give serious credence to Klass' efforts to shoehorn all UFO reports into the corona-and-ball-lightning pigeon-hole; but a large amount of magazine and press coverage has recently been given to his arguments, which is most regrettable in that this will further confuse the real issues. This readiness of editors to pick up the dubious arguments of engineers or scientists who offer arguments attacking the UFOs as nonsense, contrasts sharply with their general unwillingness to take seriously the much more solid efforts of groups like NICAP who are, in a sense, doing the very job that the journalists might well be doing - carefully reporting unusual events going on recurrently all over the country. But can one fault the journalists heavily on this score? Probably not, since once more one sees, at the bottom of all this, conviction that there really cannot be anything to all this talk about unidentified flying objects or else our Air Force would have found it out years back.

THE NATURE OF THE UFO EVIDENCE

Like most scientists, I prefer to base scientific conclusions on quantitative observations obtained from controlled experiments in the laboratory. But scientists don't always get their problems handed to them in such neat packages. Seismologists frequently have to go out and interview lay witnesses in earthquake areas in order to fill in details of their isoseismal patterns. Meteorologists can't make tornadoes in their laboratories; they must study them as they randomly occur, and rely frequently on anecdotal accounts by eye-witnesses. Meteoriticists who try to locate the fall-points of suspected meteorites often find laymen's reports confused and marked by certain characteristic errors of underestimate of distance, etc.; yet meteoriticists do manage to locate strewn-fields and impact-points by putting together large numbers of lay reports and working carefully to sort out the grain from the chaff.

Similarly, in the case of the UFO problem, it is unfortunately going to be necessary for scientists to begin by listening carefully to the accounts of many untrained observers and to do their best to sort out the grain from the chaff. With experience, one learns to immediately drop off an interview with a poor observer, an inarticulate witness, or one who is over-dramatic about his account. With diligent searching, one finds that mixed in with the lay observations are some real gems of observation made by quite experienced observers, often with a considerable scientific training. And slowly one develops a body of evidence that indicates an impressive degree of general consistency. NICAP, working in just this manner, found some years ago that the evidence for the reality of the UFOs was very weighty - but no one in science paid much heed because they were not a scientific body.

The danger of rejecting reports that originate predominantly from non-scientists is a danger science has fallen into in the past. The most notorious parallel concerns the history of the "discovery" of meteorites. Prior to about 1800, recurrent reports of peasants who claimed that stones had fallen out of the

sky were scoffed at by the academicians. In many parts of Europe, iron objects that had reportedly fallen out of the skies were venerated as church relics, and this bothered the academicians of the Enlightenment who were trying to break away from the supernaturalism of the past. Hence for years scarcely any scientists gave credence to these lay claims of witnessed falls.

But finally, in 1802, at L'Aigle, France, an unusual shower of meteoritic fragments occurred, and not only all the peasants attested to the fall, but many churchmen and local political officials added their testimony. So the French Academy sent an eminent physicist, Biot, to L'Aigle to investigate. His report, based on many persons' accounts, finally convinced the scientific world that stones do fall out of the sky. The Academy's initial reluctance to believe so odd a contention was heavily influenced by their notion of a beautifully simple, Clock-winder theory of the solar system based on the Newtonian synthesis. The idea of rocks and other debris skimming around amongst the orbits of the planets whose motions Laplace and Lagrange had so firmly accounted for, was to them distinctly uncomfortable. But Biot's analysis carried the day, and in 1803, the year of his report, the subject of meteoritics was opened as a legitimate scientific subject.

Similarly today, most of us find it uncomfortable to think that in our atmosphere there may be real objects of a most unconventional nature operating and maneuvering in a way that we cannot account for in terms of present-day knowledge. In our discomfort, most of us seem to take the easy way out and say it just can't be, and we even suspect as slightly unbalanced those who claim to have seen these things. William James put it painfully well when he said: *"By far the most usual way of handling phenomena so novel that they would make for a serious rearrangement of our preconceptions is to ignore them altogether, or to abuse those who bear witness to them."* Let me hasten to add that I'm not in any position to sermonize on this theme; I'm sure I've been guilty of the same error in my own scientific work. The difference is solely that, in the case of the UFOs, I have now seen too much evidence to be able to ignore any longer the seriousness of the problem of our collective turning-away from all of these reports.

The 1803 episode that led to acceptance of meteorites is actually only a weak parallel to the present-day case of the UFOs, for the UFOs do not appear to constitute just one more geophysical or astronomical phenomenon of still obscure nature. Almost everyone who has carefully sorted through the evidence is forced to consider quite seriously the hypothesis that the UFOs are some form of extraterrestrial probes. That is an hypothesis very much more uncomfortable, I fear, than anything like "rocks falling out of the sky." It has so much more far-reaching consequences if true; its a priori probability seems so much more remote than was that of rocks falling from the sky; it carries so much more dynamite to explode cherished conceptions of our place in the universe.

Nevertheless, trying to put aside all the preconceptions that I tend to share with orthodox fellow-scientists, and trying to keep my eyes fixed on the astounding nature and the astounding volume of the UFO evidence that I have examined in the past twelve months, I am forced to join many others who see in the extraterrestrial hypothesis the only presently plausible explanation for the now-available facts. I repeat, however, that I treat it only as an hypothesis, subject to rejection if facts so rule.

Even to hold this as merely an hypothesis is to invite the charge of going far beyond the available evidence, I've found. This is an understandable charge, yet not really a defensible charge. I have noted some of my colleagues making the mistake of judging the "available evidence" by the insignificant fraction of the actually available evidence that they are aware of. They tend unconsciously to think that the total existing evidence cannot be more conclusive and consequential than the scraps of information they have themselves read, mostly in newspapers. This reaction plus the very low a priori probability of the extraterrestrial hypothesis tend inevitably to make most scientists balk at taking that hypothesis seriously. I understand this.

But the actually available evidence pointing rather strongly in that strange direction is an iceberg of credible reports of close-range sightings by reliable people, an iceberg whose tiny visible portion belies its true bulk and significance. The heart of the problem is how to get large numbers of top-notch scientists to dive down and examine with great care the enormous bulk below the surface, the large body of evidence that exists but has not been pasteurized for acceptance by the body scientific. As long as scientists think that all this is just a lot of nonsense, they will largely ignore it. This is precisely where you editors can play an exceedingly important role, by doing some checking on your own, reading some of the substantial references on UFOs (e.g., Ref. 3, above all), and pressing in every way you can for an adequate and much-expanded investigation of the UFO problem.

NEED FOR A CONGRESSIONAL INVESTIGATION

Because, as I have now said almost ad nauseam, so much of the misrepresentation of this problem must be laid at the door of Air Force Project Bluebook, I urge that a full-scale Congressional investigation be prepared immediately to examine the actual nature of this problem. Following the protests of many citizens in the Michigan area (after some moderately interesting sightings in March, 1966), some Michigan Congressman pressed for and secured a hearing before the House Committee on Armed Services last year. But if there was ever a one-sided hearing, this was it. The three persons testifying were persons already having an obvious vested interest in telling Congress that the problem has been in fairly good hands - Air Force Secretary Brown, Bluebook Officer Major Quintanilla, and Bluebook Chief Consultant, Dr. J. Allen Hynek (see Ref. 12). Whereas NICAP had been pressing

for a chance to present its (strong) case before a Congressional committee for years (see, for example, the summary of those efforts in REf. 3, p. 173 ff), they were not invited to testify before the April, 1966 hearings before the Armed Services Committee. Fortunately, a number of NICAP members submitted material for the record, somewhat alleviating the otherwise Air-Force dominated record of those hearings, but no NICAP representatives were asked to testify in person.

I would emphasize that, at this very date, NICAP and many serious investigators of this problem have information enough on hand for a half-dozen Congressional investigations. What is needed is some pressure from the press for immediate clarification of the status of this 20-year-old mystery that has been swept under a rug of ridicule and misrepresentation by Project Bluebook. And the fastest way to get clarification will be, I now believe, a Congressional investigation. Clearly this will not solve the problem as a scientific problem; but I fear that the existing scientific faith in 20 years of Air Force assurances is so strong that we shall not see anything like adequate scientific attention given to the UFOs until Congress sorts out the incredible history of Bluebook mishandling of the UFO problem and thereby awakens scientists to the fact that they have been misled for two decades about what may well be the greatest scientific problem of our times.

THE UNIVERSITY OF COLORADO PROGRAM

Some will surely object that to urge a Congressional investigation at a time when the new University of Colorado program is just getting underway is out of order. I do not think so. First of all, I have repeatedly said and continue to say that the Colorado program is not nearly large enough to cope with the apparent dimensions of this problem. I believe that, once that program gains some momentum, it will move towards the same serious concern for the UFO problem that I now hold. But I am uneasy, frankly, at the very limited manpower resources available to the Colorado group, and they are now about a third of the way through their initial contract-period of 15 months. As I understand it, there are, at present, only four full-time persons on that program, none with training at the Ph.D. level; and the fractional-time of the several others (mainly psychologists) contributing to the program averages, as I understand it, less than 30 or 40 per cent. Several weeks ago I spent several days with three of the full-time members of the Colorado team and made directly to them the same point I am here making, namely, that this problem warrants far more scientific attention than their program is currently able to provide. It is most encouraging that they will soon add two or three more members with considerable scientific training, but even this will scarcely make the Colorado effort at all commensurate with the importance of the UFO problem.

Even if the Colorado program could quadruple its scientific staff in the next few weeks, I would still be saying that we must get more good people onto this problem. It is far too important a problem to leave in its present state, and only a large increase in high-caliber scientific manpower attacking the UFO enigma will suffice to make real progress on it.

TRANSFER OF RESEARCH RESPONSIBILITY

I believe that the primary responsibility for UFO investigations ought to be taken from Air Force hands and turned over to some strong science-oriented agency. NASA would seem to be a very logical group for this.

Curiously, I have said this both in NASA and fairly widely-reported public discussions before scientific colleagues (e.g., Ref. 13), yet the response from NASA has been essentially nil. Perhaps they, too, are sure that this is just a nonsense problem and has no relation to their space programs, their "search for life in the universe." NASA is busy telling us that there is high probability of life in the universe, but it's all far out there, not here. Frankly, when one looks long and carefully at the UFO evidence, one wonders if perhaps it's not conceivable that some of it has found us, rather than vice versa. But, to date, my own efforts to get NASA to consider that intriguing possibility seem to have been ignored. Even attempting to get a small group within NASA to undertake a study-group approach to the available published effort seems to have generated no visible response. I realize, of course, that there may be semi-political considerations that make it awkward for NASA to fish in these waters at preseht - but if this is what is holding up serious scientific attention to the UFO problem at NASA, this is all the more reason why Congress had better take a good hard look at the problem and reshuffle the deck.

Interestingly, in the course of my months of digging into the UFO problem, I have learned from a number of unquotable sources that the Air Force has long wished to get rid of the burden of the troublesome UFO problem and has tried twice to "peddle" it to NASA, but without success. I regret that I am not free to quote my sources on this, but I regard them as entirely credible. An Air Force wish to be rid of the UFOs would be entirely compatible with the firm impression I have formed from many lines of evidence that no one in any position of importance within the Air Force views the UFOs as real or significant.

Such a position is compatible, too, with all that I have been able to learn about how the University of Colorado program came into being. Everything points to this: that the Air Force regards their UFO responsibilities as a public relations liability that they would like to have done with, once and for all, and Colorado may help them unload it. The request for a group within the Air Force Scientific Advisory Board (AFSAB) to meet and review the UFO problem did not come from the Systems Command within which Bluebook operates. It came from Gen. E. B. LeBailly, Director of Information, Secretary of Air Force Office of Information (SAFOI). Gen. LeBailly's request was made on Sept. 28, 1965 (see Ref. 12,

p. 5995), some weeks after a large wave of UFO sightings all over the Midwest. That wave made headline news throughout the country, and Bluebook's "twinkling star" explanation was held up to ridicule when the Director of the Oklahoma City Planetarium gently pointed out that Maj. Quintanilla was (once again) misreading his star charts and blaming the sightings on stars that weren't even in the Midwest skies. This made headlines, too, and many editorials in the Midwest were critical of USAF's handling of the incident. If the behind-scenes response to this had been Air Force concern to try to do a better job of checking a real scientific problem, the Systems Command could easily have found several dozen men right there at Wright-Patterson AFB who could have stepped in and instantaneously upgraded the Bluebook operation by one or two orders of magnitude.

No such action followed. Instead, it was the general in charge of USAF public relations who asked AFSAB to review the situation, which they did on February 3, 1966 (Ref. 12, p. 5996). An AFSAB-appointed group, the O'Brien committee, devoted only a day to their deliberations and did not even invite the testimony of Bluebook's chief scientific consultant, both of which points may be some kind of measures of their scientific concern for the seriousness of the UFO question. It was this group that recommended establishment of a "university team" approach, which eventually became the one-university approach now centered at Colorado. All that I have seen points to the conclusion that this whole effort was directed chiefly towards getting the Air Force out from under an onerous burden, the public-relations liability of the UFOs. I know of no one on the O'Brien Committee who took the UFOs seriously. (I might add that I got a small chuckle out of the Bluebook scientific consultant's patting himself on the back, Ref. 15, about his "small sense of personal triumph and vindication" when USAF announced the Colorado program. I had firsthand contact with some of the thinking that lay behind the search for a university to head up the Air Force's UFO review. I am afraid it warrants vanishingly "small sense of personal triumph and vindication" in the mind of the one person who might have put this problem on the right track soon after he began his 18-year consultantship in 1948!)

Lest some of that sound like a charge of "whitewash," let me interject that I do not mean that at all. First of all, I know that Dr. Edward U. Condon and the University of Colorado group would not have touched the problem if it had been brought to them in such a context. But, secondly, I have found nothing to make me suspect that the Air Force views the UFOs as anything but a lot of misinterpreted natural phenomena, balloons, aircraft, and all of the rest of the things they say in the Pentagon press releases. I would not hesitate a moment to say it if I truly thought they were dissembling; but I do not think so at all.

I believe that today USAF really believes there's nothing to all this talk about unidentified flying objects. I believe that they want to get rid of the annoying business once and for all, and that they sincerely wanted to select an unimpeachable scientist and a school of good reputation to take on the job of showing once-and-for-all that there's nothing to it, and then forget about it and go back to what they regard their proper business, defending the country against hostile forces.

All this is not a point of view that I have formed overnight. I have puzzled over the curious history of the Air Force handling of the UFOs almost as much as I have puzzled over the UFOs themselves in the past year. And I have discussed these matters with many knowledgeable persons in forming the above opinion. I would be quick to agree that much evidence points to a time, back in the early 1950's, when many USAF people, some in high places, suspected that the UFOs might be extraterrestrial, though I cannot begin to lay out that evidence here. But once the turning point of the Robertson Panel and the 1953 CIA debunking order was rounded, and personnel had been rotated and shuffled a few times, I believe that the Air Force fell victim to its own UFO propaganda. I think that, as one Bluebook officer was replaced by another and high-level commands changed, no one was left, except the chief scientific consultant, who had any knowledge of how things had gotten switched over to the debunking policy. And, from my discussions with the chief scientific consultant, Dr. J. A. Hynek, I gather that even he paid little enough attention to the entire problem that he did not regard the 1953 events as very critical.

Pointing further in the same direction is the fact that I found no evidence that anyone at higher levels at WPAFB was, by 1966, even aware of the Robertson Panel report. In my third visit to Bluebook, on July 30, 1966, Maj. Quintanilla informed me that the CIA had reclassified the Report and that consequently I would not be getting my Xerox copy (they sent it down to Washington by courier, since the CIA had no copy, and evidently didn't know what WPAFB was talking about when a clearance to release the copy to me was requested of CIA!). So at that point I asked Quintanilla if the then commanding general of the Foreign Technology Division within which Bluebook has operated, Brig. Gen. A. W. Cruikshank, had ever asked him for the Bluebook file on the Panel. He said Cruikshank had not. Then I asked if the Division's Chief Scientist, Dr. A. J. Cacciopo, had ever asked to see it, and Quintanilla said he had not. It is my belief that personnel turnover has occurred so fast that, for a good many years, none of the people having direct responsibility were clearly aware of the role of the CIA decision of 1953, that the task had simply been downgraded to its low present status, and that Bluebook has been run by people who believed what they read in the papers - their own UFO propaganda.

If there had been anyone looking at the continuing input of UFO reports in a competent scientific manner, if anyone had been thoroughly familiar with radar propagation physics, meteorological optics, meteor phenomena, aerodynamics, etc., and testing each new report against the broad spectrum of scientific considerations that one has to invoke to sort out

the plausible from the implausible "explanations" of UFO reports, then I doubt that the downhill trend that set in after 1953 could ever have continued. But no such competence appears to have been operating, and I believe that things just naturally slid down to the point where each new Bluebook officer must have merely followed along in the pattern set by the man before him, talking about "stellar scintillation" and "weather inversions" and "mirages" without any real scientific knowledge of these matters, feeding information to the PIO's at the Pentagon who ground out the reassurances we've now had so much opportunity to read.

So, to summarize, I think the Air Force yawningly views the UFO problem as a PR problem, not a scientific problem. I think the present Air Force support of the small effort now underway at Colorado is fine - but far from adequate. I think that, until the truth about past mishandling of the problem is laid out and stamped with at least Congressional authority, we won't see much escalation of scientific effort to attack this problem. And this worries me. For in the UFO problem I see the dimensions of an unprecedented challenge to science. I am uncomfortable that we scientists are, as a whole, blandly ignoring it as if it weren't there, while the reports keep pouring in - pouring in at what seems to some of us to be a markedly increasing rate, and shaping themselves into patterns that give some of us pause. Some of us are **just** a bit uneasy about what we know and what **you** editors, the Congress, and the nation at large do not know. We wish that some means could quickly be found to get the world's really outstanding scientists to come to grips with this problem - not second-raters such as myself who will never be capable of plumbing the depths of so complex a problem.

Thus I ask you to join in urging immediate Congressional hearings if you can agree with me that this is probably the fastest way to force the problem out into full light of scientific investigation, both in the United States and abroad.

THE GLOBAL NATURE OF THE PROBLEM

I cannot, of course, vouch personally for UFO reports from all parts of the globe, as I can for a sizeable number of U.S. reports that I have personally checked. But after studying a large number of foreign reports, I cannot draw any other conclusion than this: the nature and density and frequency of UFO reports is evidently about the same in other portions of the globe as here in our country. We are not being singled out for any special attention.

I have been intrigued by hearing Dr. Jacques Vallee's discussions of the French reports, and will spend this evening at his home in Chicago carrying on still further discussions of the French investigations. French UFO reports are about the same as ours, briefly. I have recently been in rather close communication with the leading non-governmental Australian UFO-investigatory group, centered in Melbourne. They have been sending me press reports of Australian sightings, and again they are much like those occurring over and over in this country - discs and cigar-shaped objects, metallic looking structures often with domes on them, etc. Persons whose reliability I am given to accept describe UFO reports in South America with frequency and nature like those in France, Australia, England, and elsewhere.

American newspapers print very little domestic news from foreign countries and virtually no UFO reports from abroad, so most Americans are startled when told that it appears that UFOs are appearing all over the world. I just received a carefully prepared 45-page report from New Guinea, written by an Anglican missionary in the Papuan Territory there, summarizing a fascinating series of reports, several at close-range, in New Guinea in 1959. I had heard of these before, but seeing Rev. Cruttwell's lengthy original report increased my readiness to believe that all those sightings at Boianai, Menapi, and Samarai may actually have occurred! When I get packets full of current Australian press clippings on sightings from outback sheep stations and the like, I find it hard to maintain my provincial skepticism, and grow suspicious that perhaps all those reports are every bit as real as the ones I'm continually checking by telephone from Tucson. Before you accuse me of gullibility, take a look at the foreign UFO clippings yourselves. They may make you a bit uneasy, too.

There is a danger here that I'd better confront. You editors probably think that you know what is going on in this country, and that you're aware of an occasional UFO report from here and there, but you may be thinking that my remarks about reports "pouring in" are rather overdone. My reply is simple - if you read only what comes over your wires, you'd never guess what is really going on in the world of UFO reports, here or abroad. The only way to get a glimpse of what is actually happening is to subscribe to a clipping service that is cutting local press stories from the *Excelsior Springs Daily Standard*, the *Eagle Valley Enterprise*, the *Marion Weekly Leader* and so on (just to read off the names of a few on the clippings I just received, courtesy of NICAP's clipping-service arrangements. If you read only the *New York Times*, your own paper, and the wire copy, you won't have even a tiny fraction of the cases - because wire editors long ago came to realize that UFOs are a lot of nonsense and almost never file wire stories on such a lot of nonsense. Once in awhile they will, for reasons that are not always clear; but, by and large, I'd estimate that only one or two per cent of the locally-reported UFO sightings are read about beyond the readership area of the nearest small-town paper. This is part of the reason why this problem is being ignored. If each day's paper in each major city carried an adequate account of all of the U.S. UFO reports for the preceding 24 hours, the citizenry would be up in arms in a week demanding that Congress find out what is going on. But the bottom of the iceberg floats along unseen because wire editors have long since learned that these reports are just "silly season" stuff; so who cares what some farmer out in Sauk Center saw just above his barn last

night. (I am reminded that Ruppelt mentions in his book, Ref. 1, that for a brief period in 1952 Bluebook subscribed to a clipping service but they got so many reports they couldn't file them all and were obliged to cancel the subscription.)

I talked with an African student on our campus recently and was amused to hear that sightings not dissimilar to those occurring rather regularly in Iowa and Oregon and Georgia are reported in Africa. Yes, I believe that when all the facts are in, it will be clear that unconventional objects are hovering low over farmhouses and power plants and vehicles in nearly every corner of our globe, and have been doing so with mounting frequency during recent years - while officialdom and journalists and scientists have ignored the "peasants." Must we wait for a L'Aigle?

Or will you editors press for action now?

SOME ILLUSTRATIVE UFO REPORTS

There is no satisfactory way of presenting a fair picture of the now-available UFO evidence without going into much detail in recounting many cases, discussing credibility of witnesses, and carefully assessing the plausibility of each of a number of alternative hypotheses to account for each given sighting. Space will not permit such an exhaustive presentation here. If you seek a published summary that goes a long way towards that goal, see Ref. 3, *The UFO Evidence*, edited by R. H. Hall of NICAP. It describes over 700 cases from the NICAP files, and has the material cross-filed in a number of very useful ways. I have personally checked on a fairly large sample of the cases discussed in that publication and can state on that basis that the accuracy and reliability of the book is impressively high. No single publication on UFOs compares with this one for its level of documentation, completeness, and authenticity - though there are a number of other quite good references that are available.

I shall discuss, rather briefly below a number of UFO reports, most of which I have personally checked in some manner. Where I cannot personally vouch for the report, this will be indicated. Because there are now many thousands of UFO reports on record in Air Force, NICAP, and other files, it must be remembered that the following comprise a minute fraction of the full record. The points emphasized will vary from one case to another, since they have been selected for a variety of reasons.

Case 1. Portage County, Ohio, April 17, 1966.

Near 0500 on 4/17/66. two Portage County sheriffs deputies, Dale Spaur and W. L. Neff, were routinely checking an abandoned car south of Ravenna, Ohio. Suddenly a large luminous airborne object advanced from a wooded hill, hovered over them illuminating the pre-dawn darkness, and then moved off a short distance. The deputies radioed the desk and were told by the dispatcher to follow the object until a camera car could overtake them. Then began a peculiar pursuit that eventually took the deputies entirely out of Ohio into Pennsylvania and stretched over more than 70 miles and lasted almost an hour and a half. Two other law enforcement officers, Wayne Huston of the Palestine, Ohio, police force and Frank Panzanella, Conway, Pa., police officer became involved in the pursuit before it was over. The object was described by the officers as about 40 feet in diameter, brightly luminous, and seemed to have something like a fin on its rear upper surface. A diffuse conical luminosity extended from its undersurface. I have personally interviewed Neff, Huston, and Panzanella, and NICAP's Pittsburgh Subcommittee has done a very extensive (125 p.) report on many aspects of this one important case.

The object varied in elevation from a few hundred feet above terrain to an estimated 2000 ft as it moved along, and it reportedly moved from one side of the highway to the other in motions that match no conventional object. Huston joined the chase when he intercepted the transmissions to the Portage Co. dispatcher's desk, realized Spaur and Neff must be coming his way on Route 14, went out and parked to watch up the highway to the northwest, and soon saw a luminous object moving along followed by a speeding car. As the object and car passed, he swung in behind, got into radio communication with the deputies who were in the car ahead, and stayed with them until the end of the chase in Conway, just northwest of Pittsburgh. At Conway, the officers spotted a local policeman, Frank Panzanella, who was observing the object, and they pulled up beside Panzanella. Shortly thereafter the object shot up vertically at very high speed and passed out of sight, according to the testimony of all four officers.

The Bluebook investigation of this case would have been left at no more than an original four-minute phone call from Major Quintanilla to Spaur (in which Quintanilla sought to convince Spaur he had seen Echo satellite go over and then transferred visual attention to Venus which was then rising in the southeast) except for local press concern over the case. Local and public interest, generated by detailed reporting of the incident in the Ravenna *Record-Courier*, led, through several stages, to a request from Ohio Congressman William Stanton for Bluebook to send someone to Ravenna to make a personal check. NICAP taped that interview, and, having listened carefully to it, I can summarize it as a rather bulldozing attempt of Maj. Quintanilla to persuade the officers that it was only Echo and Venus that they saw. They were not impressed.

The Echo-Venus explanation still stands as the official Bluebook explanation of this case, despite the efforts of NICAP, Dr. J. A. Hynek, the *Record-Courier* and myself to secure revision. The fact that Officer Huston saw the object coming in out of the northwest clearly rules out his seeing Venus, yet at that time the first two officers had been following the object for a much longer time than Echo requires to transit the full sky. This, plus the four-witness description of vertical ascent at

the termination of the sighting are calmly swept aside by Bluebook with its Echo-Venus "explanation."

On September 30, Col. Hayden P. Mims, Congressional Inquiry Division, sent a letter to Congressman Stanton telling Stanton that a further review of the reports confirmed the original Echo-Venus explanation. My own interviews with three of the principal witnesses were made subsequent to Mims' letter, and I carefully queried each man as to whether the Air Force had ever gone back to them to check further on their accounts. Not one of the three had been interrogated since the original interviews in May. In late July, 1966, I asked Quintanilla to let me see Huston's crucial testimony, but was not permitted to examine it in full. Huston told me in October that he had been interviewed by an investigator sent by USAF who took full notes on the crucial point that Huston saw the object coming down Route 14 from the northwest. Yet this point is blandly ignored in the Bluebook Echo-Venus explanation.

Despite the absurdity of the Echo-Venus explanation and despite open criticism of it from the cited sources, that explanation still stands in the official Bluebook records. Congressman Stanton was forced to accept the assurances tendered him that the Air Force had carefully evaluated this case, and the law-enforcement officers had to take the brunt of such ridicule and pressures as all this brought to them. There are many more details pertinent to this case that are fully documented in the 125-page report prepared by William B. Weitzel, a University of Pittsburgh instructor who headed the Pittsburgh NICAP Subcommittee's thorough investigations of this case. Few cases better illustrate the unreasonableness of Bluebook's approach to the UFO problem and their incompetent and superficial investigations. My memorandum and my correspondence to WPAFB asking for rectification of this case have never been answered. It was my dismay over the Mims letter and Bluebook's refusal to alter their stand on this case that led me to begin open and pointed criticisms of the Air Force investigations in October 1966 (Ref. 13).

Case 2. Exeter, N.H., September 3, 1965.

This case has been rather fully reported in many places, notably in a book by J. G. Fuller (Ref. 16); and a number of other good reports and discussions of it can be found in House Document 55 (Ref. 12). After several preliminary sightings that I shall omit to save space here, the principal sighting by Exeter policemen Eugene F. Bertrand and David R. Hunt and by an 18-year-old boy, Norman J. Muscarello, took place at about 0200 on Sept. 3rd. I have personally interviewed Bertrand and Hunt and have discussed their reliability with Exeter Chief of Police R. D. Irvine. Omitting many details, the men saw an object, estimated at almost 100 feet long, carrying a number of bright blinking red lights, maneuvering and hovering silently over a farmhouse until it soundlessly went away.

Maj. Quintanilla's first explanation for this was "twinkling stars." When the officers wrote to Bluebook, protesting such an explanation which would hold them up to ridicule and place in jeopardy their reputations as reliable officers, the explanation was switched to involve a night-advertising aircraft. When it was next determined that the aircraft in question was not even operating that night, Maj. Quintanilla altered his explanation to one involving a B-47 refueling operation near Pease AFB. When, finally, the policemen secured the actual time of that operation and thereby established that the refueling operation was over by the 0200 time of the main sighting, Quintanilla finally classified it as Unknown. A revealing history.

Case 3. Ernest Stadvec, Akron, Ohio, July 4/5, 1961.

Many more cases are on record in which the witnesses did not so assiduously press for correction of Bluebook's unreasonable explanations. One witness in an Akron sighting, owner of a local air service company, Ernest Stadvec (Ref. 17), told me in an interview concerning his sighting that once Bluebook came out with a press release that he had been looking at the star Capella and that this was the correct explanation of two fast-moving luminous objects he sighted from the air in his private plane, he wanted to forget the whole thing and save himself further embarrassment. His description would not remotely fit "Capella," since one object descended rapidly from a high elevation angle, the other climbed out under his plane and shot off in directions not even close to Capella's location at the time. Stadvec said the Air Force explanation "made me look like an idiot," and he went on to tell me of other subsequent pilot sightings in that area that were not reported publicly because of the way the Air Force had handled his sighting.

After the second object sped off at very high speed, Stadvec states that he contacted FAA Cleveland and the control tower operator told him by radio that a fast luminous object had been sighted visually and on FAA radar; but the latter was denied to the press the next day.

Case 4. Red Bluff, Calif., August 13, 1960.

A rather detailed account of this sighting can be found in Ref. 3 (see p. 61, 112, and 170). I have interviewed one of the two California Highway Patrolmen who were the principal witnesses and have spoken with two other persons in that area who were involved in the incident. CHP officers C. A. Carson and S. Scott, driving east at 2300 on a back road south of Red Bluff suddenly sighted what they first took to be an aircraft about to crash just ahead of them. Pulling their patrol car to a rapid stop and jumping out to be ready to render whatever assistance they could, they were astonished to see the long metallic-looking object abruptly reverse its initial steep descent, climb back up to several hundred feet altitude and then hover motionless. Next it came silently towards them until, as Officer Carson put it to me, "it was within easy pistol range." They

had their pistols ready and were debating whether to fire when it stopped. Attempts to radio back to the nearest dispatcher failed due to strong radio interference, an occurrence that recurred each time the object came close to them during the remainder of this 2-hour-long sighting. Huge bright lights at either end of the object swept the area. Carson stated to me that one light was about six feet in diameter; other smaller lights were also discernible on the object. After some initial minutes of hovering only 100 to 200 feet away from them and about that same distance above the ground, the object started moving eastward away from them. They then contacted the Tehama County Sheriff's office that handled their night-dispatching work, and asked for additional cars and for a check with Red Bluff Air Force Radar Station. Then they began to follow the object. The full account is too involved to relate here (see Ref. 3), but it is important to point out that a number of witnesses confirmed the object from various viewing points in the county, and a call to the AF Radar unit brought confirmation that they were tracking an unknown moving in the manner reported by Carson and Scott.

When, however, Carson and Scott went next day to talk with personnel at the Red Bluff radar base, they were informed that no such radar sighting had been made. Their request to the officer in charge to talk with the radarman on duty at the time of the incident was denied. The Bluebook explanation that came out after a few days attributed this very detailed, close-range sighting of a large object, seen by two experienced officers, to "refraction of the planet Mars and the two bright stars Aldebaran and Betelgeux." NICAP referred the question to one of their astronomical advisers, who found that none of the three celestial objects were even in the California skies at that time. Bluebook then changed the explanation to read Mars and Capella! Capella, the only one of those celestial bodies that was even in the California skies at 2300, was nowhere near the location of the sighted object, and could not, of course, give the impression of the various maneuvers clearly described by the officers.

Carson subsequently stated, "...no one will ever convince us that we were witnessing a refraction of light." And to me, he wryly remarked on the Bluebook explanations that "I'd sure hate to take one of my cases into court with such weak arguments." Dr. Menzel (Ref. 9, p. 254) concurs with the Air Force explanations and speaks of this being a night of "fantastic multiple inversions of temperature and humidity," such that he would have expected many more reports of UFOs. I should like to know what radiosonde data Dr. Menzel is citing, since the data I obtained does not fit that description. And any such casual putting-aside of the details of the basic report has no scientific justification in the first place. If Menzel and Bluebook think California Highway Patrolmen draw their .44's in uneasiness over looking at a refracted image of Capella, and misinterpret it as a 100-ft object with huge bright lights hovering over the road nearby, I am afraid I cannot share their readiness to so easily discredit and discount reliable witnesses. When I spoke with Carson a few months ago, I found him still deeply impressed by this incident, over six years after it occurred. "I've never seen anything like it, before or since," he emphasized.

The northern California valley area was the scene of a number of other very interesting sightings in the period August 13-18, many of which NICAP has documented and cited. In my own checking of the Carson-Scott sighting, I ran onto one additional interesting "hidden UFO report" involving a sighting of a low-altitude hovering disc with red lights, seen by a Red Bluff physician during that same period, but will omit details here.

Case 5. Beverly, Mass., April 22, 1966

Just one year ago today, an exceedingly interesting sighting occurred at about 2100-2130, well within a populous urban area, near the intersection of Salem Road and Sohier Road, Beverly, Mass. One of NICAP's most thorough investigators, Raymond E. Fowler of Wenham, Mass., checked this case carefully, and it was from his detailed report to NICAP headquarters that I obtained the supporting information to back up my own interview with one of the key witnesses, Mrs. Claire Modugno. As in all cases worth citing, the full detail is so great that it is impossible to do justice to it in a brief summary such as this.

The incident began when Nancy Modugno, age 11, was frightened by a hovering red light outside her bedroom window. Just as she called to her father, ne happened to note that the TV picture he was viewing became scrambled. To quiet the girl's near-hysteria at whatever she had seen, Mrs. Claire Modugno and her two neighbor-women went outside to establish that it was only an airplane light. However, they found instead that about 200 yards from the adjoining intersection, viewed directly across the athletic field of Beverly High School, three brightly lit oval-shaped objects, estimated to be perhaps 20 feet in diameter, were circling in an oddly pulsatory motion directly above the high school building. Mrs. Modugno estimated they were only about 20 feet above the roof, when I queried her on this point. One of the women, Miss Brenda Maria, age 22, whimsically waved her hands as if to beckon them toward the group; one object immediately left the circle and moved towards them, hovering only about 20 feet above one of them. Fowler's full report conveys some of the fright these women evidently felt, and Mrs. Modugno emphatically confirmed this to me. The women ran back to the Modugno home and phoned the Beverly police, who sent a patrol car with two policemen (Officers Bossie and Mahan). Then the two policemen and several neighborhood adults all observed the three unidentified objects, whose movements and location had changed somewhat. The officers got on their radio and called for Air Force jets, but the UFOs moved away before any jets could get there. No Air Force check has ever been made of this case, to Mrs. Modugno's knowledge. This is an example of a case that was not even reported in local newspapers, yet is clearly an incident of great interest. I call attention

to the fact that this case contains actions that might be loosely described as "contact" if one interprets the seemingly immediate response of one of the objects to Miss Maria's waving as anything more than adventitious. Other such instances, involving seeming "response" can be cited, though they are too few in number to justify any strong generalizations.

Case 6. Goodland, Kans., March 8, 1967

I have interviewed both Editor Tom Dreiling of the Goodland *Daily News* and Goodland patrolman Durl Rouse concerning their joint sighting of a torpedo-shaped object that maneuvered over that western Kansas town not many weeks ago. Rouse had been observing the object (or possibly more than a single object) for some time before contacting Dreiling about 0200. It had multicolored flashing lights and an intensely bright beam fore and aft on its 50-60 foot main body. This object is in the category of the non-silent UFOs: it made a noise that Dreiling described as like a "huge vacuum cleaner," adding that he'd never heard any aircraft or helicopter making a noise remotely resembling this. The object passed over the Dreiling residence at an estimated altitude of 1500 ft. Rouse, using field glasses, saw structural details including a central shaft with a red light on top and an odd color-banding. I am unaware of any official explanation of this sighting; Bluebook investigates only cases reported directly to the Air Force.

Case 7. Davis, Calif., February 13, 1967

At about 1915, two young women driving back to their homes in Woodland, Calif., after a Sacramento shopping trip, noted a bright light which both took to be an aircraft landing light at first, before they even exchanged comments on it. As they left the Sacramento Freeway (Hwy. 80) to turn off on Mace Blvd. to head north to Woodland, the object seemed to head for their location, and continued to close with their car until it came to within a (very roughly) estimated 100 yards. By this time, the driver, Miss Karen Prather, and her passenger, Miss Carol Richied, both of whom I interviewed, had become somewhat frightened, and Miss Prather had accelerated to over 80 mph in a futile effort to move out of what had seemed like the diving approach of an aircraft. But as the object approached, both knew it could not be an aircraft, for the "big light" became resolvable into three separate lights in triangular array. Both described these lights as "huge." Just as it appeared that it might move right into their car, the object tipped up, displaying a disc-like base with one central red light and five or six dimmer white lights. As the disc tipped its nearer edge up, it simultaneously executed a quick turn to the southwest and sped off towards Davis, eventually passing out of sight in the lights and haze over that city. No sound was audible over the noise of Miss Prather's speeding Mustang, they stated.

The girls reported the incident immediately to the Woodland office of the California Highway Patrol, and from the latter office it got to the Woodland *Daily Democrat*. The following day a California Highway Patrolman contacted them and stated to them that they should not take seriously the kidding they were probably receiving, for he had seen an object answering to the same description at about 1945, only about 30 minutes after the girls' sighting. To date I have been unable to secure the name of that officer. A Davis NICAP member is pursuing the case, I understand, and hopes to get an open confirmation of his sighting. Reports that other motorists in the same area saw this object are being investigated, but no other witnesses have been located to date.

Case 8. Near Cincinnati, Ohio, February 11, 1967

A number of independent sightings on the evening of February 10/11, 1967, in suburban areas north and east of Cincinnati were checked by L. H. Stringfield of that city. After receiving his report, I personally interviewed three witnesses, confirming the highlights of Stringfield's more complete report. At several localities that night, a glowing, reddish, cigar- or football-shaped object was described as moving overhead or hovering. But most interesting were the accounts given to me in telephone interviews with Michael McKee, age 21, and Miss Sharon Hildebrand, age 19.

They had seen what appeared to them as a domed or disc-shaped object hovering over a creek-bed in a wooded area near Milford at about 0145 on the 11th. McKee, using a railroad searchlight he had in his car, illuminated the weakly-glowing object and found it to be highly reflective. No sound came from it as it hovered only an estimated 100 feet away. He started to walk toward it to examine it more closely, but Miss Hildebrand became very frightened and cried to him not to go, so he returned to the car. (McKee felt willing to say to me that he did not need very much persuading to return to the car.) Miss Hildebrand's father mentioned to Stringfield that his daughter was still in a state of shock when the two returned to her home. Police were notified and investigated about an hour later, finding no object, but noting that tree branches were broken off in a roughly circular area matching the 30-ft diameter estimated by the two witnesses.

One of the other witnesses who reported seeing only airborne objects, Mr. George Dover, of Wyoming, Ohio, told me by telephone that he had seen a red-glowing object pass near his house, heading towards the general location of Milford just before 0100 that same night. Other accounts will not be cited here, since I have not personally checked them.

Case 9. Richmond, Va., June 24, 1966

This is another sighting by a law-enforcement officer. In general, one notices the pattern that UFO reports tend to come primarily from persons whose vocation takes them out of doors a great deal or who are engaged in some form of observational work. There are more nighttime UFO observations than daytime observations (reasons unknown), and a substantial

number of nighttime cases involve sheriff's deputies, police officers, and watchmen. There is nothing surprising in this.

At about 0330, Richmond patrolman William L. Stevens was cruising on the edge of Richmond when he spotted some yellow and green lights a few hundred feet in the air. Driving closer in his patrol car to secure a better look, he found that the lights appeared to surround the edge of a "dirigible-shaped" object, which he estimated at perhaps 100-125 feet long and over 30 feet in diameter. The lights were alternately green and yellow, in a string around the object, and the entire object seemed to be enveloped in a haze or mist of some unusual nature.

As he neared it, the object moved off ahead of him. He continued following and stayed with it for over six miles before it accelerated and sped away. When I interviewed Stevens by phone, he stated that it moved as if it "were playing a game" with him, always maintaining about the same lead-distance ahead of him, despite his altering speed several times. At one point he was driving at 110 mph. Two other officers in Henrico County also reported seeing moving lights in that area at that general time, but no other witnesses reported seeing the object at as close a range as did Stevens. A young couple reported a somewhat similar object north of Newport News that night. This case was reported in the Richmond *News Leader* some weeks later (July 21); Stevens feared ridicule and had not volunteered a report earlier.

As a postscript to this latter point, and further commentary on the widely encountered sensitivity to ridicule that has evolved from years of "explanations" by Bluebook, plus hometown newspaper ridicule growing out of the mismatch between original citizens' reports and subsequent Air Force statements, I might quote from a clipping that happens just to have come across my desk. Capt. Jack Brown, of the Mt. Shasta, Calif. police force, is quoted in the Redding, Calif., *Record Searchlight* for Feb. 17, 1967, concerning some unusual sightings he and other local police officers have made recently in the Shasta area. I omit the sightings, since I have not checked them, but note that Brown is quoted, in a purely matter-of-fact way as saying "he knows what has happened to other law officers who reported seeing flying saucers: They were ruined by the publicity." That may be a bit too strong; but I know from much personal experience in interviewing witnesses that witness after witness has been embittered by callous Air Force discrediting of their accounts. It's high time that this pattern was terminated. It will be terminated only when some truly competent personnel not committed to UFO-debunking are made responsible for investigations.

Case 10. Randolph, Vt., January 4, 1965

This was another case originally checked out by NICAP investigator R. E. Fowler. At about 1715, Dr. Richard S. Woodruff, Vermont State Pathologist and Professor, College of Medicine, University of Vermont, was returning to Burlington from grand jury testimony in Brattleboro. His driver was a Vermont State Trooper whose name has been released to NICAP but not released publicly. Driving north between Bethel and Randolph, on Hwy. 12, the two suddenly noticed a sharply-defined round object, glowing with a reddish-orange light, streaking across their path at perhaps 200 feet above terrain. It passed from west to east in a matter of seconds, making no noise audible over their own engine noise. No sooner had it passed out of sight to their east than a second similar glowing object streaked past, and finally a third, the total duration of the sighting being only about 30 seconds. They estimated the distance to the objects at one-half to one mile; but in the twilight, their estimates, according to Dr. Woodruff, with whom I have discussed the incident, were probably not too reliable. Both were entirely certain these were not aircraft or astronomical objects, and they noted that the objects climbed slightly as they moved eastward. The angular diameter corresponded to a baseball at arm's length or perhaps a bit larger, according to these witnesses; i.e., many times the angular diameter of the moon. The skies were clear and stars were visible. Four men driving in another car on the same highway reported seeing three similar objects at about the same time and place, and gave generally similar descriptions, as did also H. E. Wheatley, Chairman of the Randolph Board of Selectmen, who saw the phenomenon while driving about a mile north of Bethel.

NICAP obtained from Maj. Marston M. Jacks, of the Pentagon Office of Information, on January 27, 1965, the Bluebook evaluation: meteors of the Quadrantid meteor stream. Actually the radiant-point of this stream was, at that time, about on the NNW point of these observers' horizon, so any Quadrantids moving in the west-to-east manner described by all witnesses would have been invisible due to the very trees above whose tops these three glowing objects were observed moving. Secondly, the reported angular diameters are completely out of accord with that of stream meteors, and the passage of three such objects along essentially identical trajectories within 30 seconds or so strains the meteor hypothesis still further. Dr. Woodruff, emphasizing that he is quite familiar with meteor phenomena stated, in comment on the Bluebook evaluation, "If I had thought that there was any possibility that the three objects we saw were meteors, I never would have mentioned the matter."

Case 11. Cherry Creek, N. Y., August 19, 1965

This is a case where I have not been able to make contact with the principal witnesses by phone, but a rather thorough NICAP report is available, and even more interesting, this is one of the small fraction of all cases which Bluebook has put in its officially Unexplained category. Finally, it illustrates a phenomenon found in so many UFO cases that it cannot be ignored: panic reactions among animals in the vicinity of a close-range UFO. I have a special file of such animal-reaction cases, which I am assembling because these cases seem

to have strong bearing on the question of whether the UFO observations are some quirk of human psychology, or as Jung once suggested, "psychic projections of archetypal images." If cows, horses, dogs, pigs, cats, and birds share our archetypal images and psychically project them, then perhaps I'm wrong in suggesting these cases rule out purely psychological explanations of the UFO phenomena. To date, however, I have found no psychologists who are willing to go so far as to suggest that bovine, canine, and equine archetypal images are identical with ours.

At about 2020, on August 19th, Harold Butcher, age 16, was milking on his parents' farm. He had a transistor radio tuned to a news program, and was using a tractor to power the milking machine. Suddenly, several things happened almost simultaneously: Static-like interference rose in his radio, the tractor motor stopped, and a bull tethered outside in the barnyard began stamping and bellowing (making a noise "like I have never heard come from an animal before," as the boy said it). Looking out the barn window, Butcher saw a large elliptical object descending to the ground, about a quarter-mile away, making an audible beep-beep sound. The object, which he said was about 50 ft long and football shaped, remained on the ground for only a few seconds before shooting straight up into the clouds overhead. When he yelled for members of his family to come out, they noted a strange odor, a peculiar greenish glow in the clouds into which the boy stated that the object had disappeared, and they found that the bull which had been tethered to a steel bar had bent the steel bar in his efforts to get loose.

Mrs. Butcher phoned state police, and before they arrived the object had been briefly sighted again by four persons. USAF officers from nearby Niagara Falls AFB investigated the case. A purplish liquid of unknown nature was found at the spot Harold indicated he had seen the object first touch down (or seem to touch down). The tall grass was disturbed in that area and singed in some places. Two track-like soil depressions were found. On the next night, State Trooper Richard Ward saw an object with eight circular lights, flying at a speed which he put at double that of typical jets yet emitting only a faint purring sound. His sighting was made only a few miles from the Butcher farm.

The Air Force report notes that milk production from the Butcher dairy herd fell to less than half its previous value after this sighting and stayed low for some days. It might be mentioned that there are three cases on record of cattle being stampeded by nearby UFOs, and a Clarinda, Iowa, farmer whom I have interviewed about an object which was reported as landing on his farm, said that his cows fled to the farthest available area within his fenced pasture and would not return for several days to the corner in which the object had landed. There are many cases of extreme reactions in dogs that were present when UFOs were cited. In the Sept. 3, 1965, Exeter, N.H., incident, horses started stamping and kicking their stalls at almost exactly the same instant as Officer Bertrand and young Muscarello spotted the object coming in over trees at the Dining farm. Bertrand, when I asked him, was unsure whose reaction was first, his or the horses.

Case 12. Dexter, Mich., March 20, 1966

It was Frank Mannor's dogs who first reacted to the glowing object that became the center of the famous "swamp gas" controversy of last spring. Mannor, on going outdoors to see why his dogs were barking so unusually at 2000, spotted a luminous object "coming down at a forty-five," towards a nearly wooded swamp. The object reportedly hovered momentarily and then descended below his line of vision. With his son, he walked out towards the spot, and spotted it again, glowing in the swamp, several hundreds of yards ahead. He stated that it seemed to be sitting in a patch of mist, about 10 feet off terrain, was domed in shape, and had a coral-like or quilted structure to its surface. Suddenly the light turned blood-red and then blinked out, according to the accounts of Mannor and his son. In the meantime, others had been summoned, including police, some of whom reported seeing the glowing object in the swampy wooded area.

(I have tried twice to reach Mannor by phone to confirm details of his sighting. The first time his wife informed me he was not talking to anyone as a result of all the ridicule he had received. The second time, their phone was unlisted or disconnected. I have heard a NICAP taped interview with Mannor in which he confirms the main features as reported in the press and corrects *Life*'s erroneous drawings of the shape of the object that he saw. It had a flat bottom, he stressed.)

At a large press conference, Bluebook scientific consultant Dr. J. A. Hynek, proposed that all this was due to swamp gas. The source he cited for his authority was Minnaert, a Dutch astronomer, whose book mentions will-of-the-wisp but goes way back to an early 19th century scientist to find a corroborating witness. Swamp gas is methane, and it remains a chemical mystery how it sometimes ignites by natural processes, giving evanescent flickering flames a few inches high over marshy areas, mainly in summer when chemical reaction rates are high. A colleague who earned his Ph.D. collecting salamanders in that very area said he'd never once seen swamp gas burning, even in the summer when production rates are maximal. The Dexter case involved a luminous object "the size of an automobile" described as descending into the swamps and then glowing so brightly it was visible for hundreds of yards away through the brush and trees, scarcely a close fit to swamp gas. Furthermore, low temperatures at that time of year could support only extremely low methane production rates, and the winds that night were about 5 mph, which would have precluded accumulations of more than trace amounts under any conditions.

Probably no one UFO "explanation" has brought the Air Force more ridicule than this swamp gas case. "Swamp gas" has become almost

a symbol of public ridicule of the Bluebook contribed explanations. I attempted many months ago to persuade Bluebook to change that to an Unidentified, but was emphatically told by Maj. Quintanilla that any changes would have to come from Dr. Hynek, not him, since the Air Force had absolutely nothing to do with that one. Dr. Hynek, when I then pressed him to consider retracting it on his own, indicated that perhaps that might be a good idea, but has not done so to date.

Case 13. Damon, Texas, September 3, 1965

Less than 24 hours after the Exeter incident, two Brazoria County deputy sheriffs were cruising near Damon, Texas, when they spotted what they first took to be a gas-well fire in the distance. But as the lights separated and then floated up into the air, Deputies Billy E. McCoy and Robert W. Goode took increased interest. They decided to drive via back roads to investigate, and had pulled over to the side to check again with binoculars when suddenly the lights seemed almost instantaneously to shoot towards them and stop over a field only about 150 feet from them at an altitude of perhaps 100 feet above the field. I have interviewed both men, and despite their being experienced law enforcement officers, they did not conceal the fact that this sudden approach and the astonishing size of the object frightened both of them.

The object was extremely large; one compared it to the size of a football field, the other put its length as 200 feet or more. Its vertical thickness at its domed center section they thought to be 40 to 50 feet. A very bright purple light on the object illuminated not only the ground near the object, but even the inside of the patrol car. Goode was driving, and his left arm was on the outside of the car. Despite the covering of a shirt and coat, he sensed heating of the exposed arm in the moment before they darted off as fast as the patrol car could go. McCoy looked back as Goode drove off, and the object was seen to shoot off at high speed back in the direction from which it came, and then veer upwards and disappear aloft. The Bluebook office assembled data on the location of the star Antares and on local inversions, and at one stage this was their tentative explanation for this highly un-astronomical sighting. But the final evaluation that now stands for this one is Unidentified.

Yearly, and sometimes in between, Bluebook puts out assurances that in the (tiny fraction of cases in their) Unidentified cases are none that "defy explanation in present-day scientific and technological terms." When one examines some of the officially Unidentified cases like the Damon Case, or the Exeter or Cherry Creek, or the famous Socorro case, or any of a number of other officially Unknown cases that are not remotely like anything in our present-day technological or scientific knowledge, one wonders just what Bluebook's frequently-reiterated phraseology is supposed to mean.

Case 14. Salt Lake City, Utah, October 2, 1961

A multiple-witness daytime sighting of a solid, metallic-looking disc was headline news in the Salt Lake *Tribune* of October 3, 1961, though wire editors didn't take it seriously. A Salt Lake insurance man, Waldo J. Harris, flying his private plane, took off from Utah Central Airport at almost exactly noon. During his engine run-up on Runway 160,he casually noticed what he thought to be a plane a number of miles off to the south-southeast. After lift-off, he noticed it again in the same apparent spot. After climbing out and turning out of the pattern, he happened to notice it a third time, and this time became puzzled that it had not altered its apparent location appreciably. He thought perhaps it was doing tight S-turns, he told me in an interview with him some months ago, and he might not have paid further attention to it except for the fact that suddenly it executed the first of several "wobbling" maneuvers and glinted brightly in the noon sun, giving him a sharper impression of shape. It looked disc-like, he thought. But still being unsure, he flew towards it and climbed to 6000 ft. When he got within an estimated 2-3 miles of it, at the same altitude as the object, he confirmed his impression that it was like two saucers, in lenticular over-all outline. It appeared motionless in midair at his flight altitude, and at one important point it lay between him and distant Mt. Nebo, so that he was viewing it against the distant mountain background.

He tried to close further, but suddenly the object abruptly shot upwards, by an estimated 1000 ft, and as he closed still further, it began moving southwards at a considerably faster speed than his, and then again seemed to hover perhaps 8-10 miles away from him. When he continued towards it, but long before he came close again, the object suddenly shot upwards at extremely high speed towards the southwest and climbed out of sight.

At the time that he first discerned its non-conventional shape, Harris had radioed back to the Utah Central Airport and requested that personnel there get binoculars and examine the object from the ground. A total of seven ground observers confirmed the general features of his sightings. These included Mr. and Mrs. Jay Galbraith, who operate the airport, Robert Butler, a mechanic, Virgil Redmond, and several others. The rocking motion as the object hovered was confirmed by the ground observers. A number of other observed details will be omitted here.

The original Bluebook explanation, released by the Pentagon press desk, was that Harris had seen either a balloon or Venus. I discussed balloons with Harris at some length; he obviously had seen a lot of them, large and small, in his flying experience. He was quite positive that a balloon was out of question. He said that when he was first told that a Pentagon Air Force spokesman had suggested it was Venus he was viewing, he had pointed out again that his account emphasized that at one stage of the sighting the object clearly lay at his 6000-ft altitude, between him and

distant terrain. He said that, at the time of that Air Force announcement, he had made some jaundiced public statement to the effect that he's a bit worried about the safety of our nation if there are people down there in the Pentagon who think you can fit Venus into the Salt Lake Valley, between him and Mt. Nebo.

I had checked the present status of the Harris report, at Bluebook in June, 1966, and proceeded to tell him that it is now officially classed as a "sundog." I shall not repeat his comments.

One can easily take this sighting and show how unreasonable both the "Venus" and "sundog" explanations are. Venus lay in the southwest sky at an angular altitude well above Harris' horizon, and would be quite difficult to spot without diligent searching. But Harris saw the object towards the south-southeast, "right down Runway 160", and it was on his horizon when he had climbed to 6000 ft. Similarly the sundog explanation is nonsensical. The altitude of the noon sun at Salt Lake City that day was about 40°, and sundogs, if there had been any, would have occurred to right and left at essentially that same angular altitude, far above the position in the sky where Harris and others saw the object hovering. Furthermore, the skies were almost cloudless, the observers emphasized. This case is just one more of hundreds of glaring examples of casually erroneous Bluebook explanations put out by untrained men and passed on to the press and public by PIO's who are equally untrained and cannot recognize elementary scientific absurdities when they see them. Yet just this kind of balderdash has left the bulk of the public with the impression that UFOs can't exist since the Air Force has disproved virtually all the reports they've ever received.

Case 15. Central Indiana, October 3, 1958

In the records are many (probably well over two hundred) cases where UFOs "buzzed" cars, and there are also several instances, from various parts of the world, where unidentified objects have passed over railroad trains in a manner suggesting something more than random coincidence. One interesting example involves a Monon Railroad freight train that was repeatedly overflown by four glowing discs during a protracted episode early on October 3, 1958. I have interviewed three of the five train crewmen, confirming details to be found in the NICAP report and in a more complete account by Frank Edwards, who originally investigated the sighting. It is a very involved sighting, since the objects followed the train, maneuvering back and forth near it for an hour and ten minutes; hence only a sparse outline will be given here.

The objects were first sighted a bit after 0300, well ahead of the train, crossing the path of the southbound freight as it was near Wasco, Indiana. Cecil Bridge, fireman, sighted them first, and quickly pointed them out to the engineer, Harry Eckman, and another crewman in the cab, Morris Ott. Shortly thereafter, the objects executed a turn and came in towards the train obliquely, passing right overhead at a height estimated at something like 100 feet or so. The men in the cab had radioed the caboose crew, and conductor Ed Robinson in the caboose cupola told me that he was looking right down the line of cars as the four disc-like things swept over the train. He estimated their diameters as 30-40 feet. My interviews with Eckman, Bridge, and Robinson cannot be fully summarized because all of the maneuvers that then unfolded would take too much space to recount. At one time the train was switching cars at Frankfort, Ind., and during the 10-15 minutes operation, Robinson said that the objects seemed to have "landed" a mile or so back up the line. He could make out sparks or glowing lights, but not much detail. After the train resumed motion, the objects followed them again, and did not break off and leave until the train reached the vicinity of Kirklin, Ind. I checked carefully whether there was substance in reports that they had been told to keep quiet about this sighting; all three emphatically denied this. They had not been interrogated by any USAF personnel about this sighting. I believe I am correct in saying that no wire-story coverage on this important case was ever filed.

Case 16. Washington National Airport, July 19 and 26, 1952

One does not have the full picture on UFOs and their official investigation until he has studied carefully many of the cases in the later 1949's and early 1950's, prior to the 1953 turning-point of the Robertson Panel and CIA debunking order. In the past year, I have rather carefully gone over several dozen important cases from that period, and have run down witnesses in many of them. In the case of the Washington Airport incidents, I have never located any witnesses for personal interviews; but the basic facts of this most famous of all UFO episodes are well attested in press records which I have gone over, so personal interviews are not so crucial here.

I shall not attempt a full recounting, since so much went on that even a chapter in Ruppelt's book (Ref. 1) does not do justice to it. The principal points deserving emphasis are these: Unknown returns were picked up on as many as three separate radars in the Washington area, at times all three sets having compatible echoes. Visual observations of these fast-moving objects were made from ground and air, especially the latter. Despite frantic confusion on both of these two occasions, the record is moderately clear as to who saw what and where. The CAA radar controllers, to this day, insist that the echoes were good hard echoes, quite unlike familiar ground-returns caused by anomalous propagation under inversions. The official explanation put out at the time was that the radar returns were due to anomalous propagation, and the visual sightings were caused by refraction effects due to the same inversions responsible for the radar anomalies.

I have examined the radiosonde data for both nights, have computed the refractive index gradients, and find that, after making allowance

for lag effects in the radiosonde, radar ducting could not have occurred. The suggestion that an inversion of the sort exhibited by the radiosonde data for that night at Washington caused the reported visual effects is absolutely absurd. First of all, the inversion was a very weak one by mirage standards, so that even the ground observers could not have seen mirages. But worse, the optics of mirages and the "optics" of radar ground returns are significantly different in several respects, so that false targets would not seem to lie in the same place in the sky to a visual observer and a radar observer. Furthermore, the most important visual observations were not on the ground but in the air by several commercial pilots (and even by one jet pilot who was vectored close to one of the radar targets moving over the capitol). Finally the temperature data aloft at aircraft altitude were not even remotely capable of producing anything like what was described by the pilots.

These 1952 "explanations" have never since been challenged, and the summary analysis of this case that Bluebook still sends out when queried on the case is a verbatim assemblage of the hasty remarks made by frantic officers trying to get the Air Force off the hook in that tight squeeze of July, 1952. I even found a passage in the currently distributed case summary which asserts that "unfortunately the only day for which weather data was obtained was for 26 July 1952," precisely the assertion I found appearing on a memo dated 29 August 1952 from Capt. James (a radar officer) to Capt. Ruppelt (copy of memo in Bluebook file on this case). But, amusingly, a dozen sheets of dog-eared paper further on in this very same file that Maj. Quintanilla gave me, I found the allegedly missing Weather Bureau radiosonde data for July 19! When I plotted it, it became quite clear that no anomalous propagation could have produced the solid radar returns so emphatically described to the press by the experienced CAA radarmen on duty that night.

Donald Keyhoe, in one of his books, vividly describes the press conference at which all this misinformation was put out to press, Congress, and public. Several reporters had asked a few questions of knowledgeable radarmen and tried to object that the weather data simply did not support the Air Force claim of ground-returns; but their objecting questions were cut off.

Case 17. Mount Rainier, June 24, 1947

On the basis of several extended telephone discussions with Kenneth Arnold, the private pilot who reported this era-opening UFO sighting, and on the basis of examination of weather data for that day, I must categorically reject the long-standing Air Force explanation that this was a "mirage." Dr. Menzel, in his second book, also subscribes to this hypothesis. The radiosonde data for that date show no strong inversion aloft of the type that would be required to produce even a mild mirage; but there's no indication that either Bluebook or Menzel used any quantitative considerations in arriving at their explanation. Furthermore, Arnold described the objects as slowly climbing as they fluttered along at high speed from the Mt. Rainier area to near Mt. Adams, a roughly 45-mile distance which he timed them covering at a speed of about 1500 miles per hour. (Scientists will be amused to be told that in the official Bluebook summary analysis, this speed is quoted as "1656.71 miles per hour." At first the objects were viewed by Arnold against outlier peaks on Mt. Rainer; that put their altitude at roughly the same as his flight altitude of about 9500 feet. But by the time the discs reached the Mt. Adams area, Arnold stated that the lead objects in the string of nine had ascended to perhaps 13,000 to 14,000 feet near Adams. That much altitude increase implies so large an increase of angular altitude that the possibility of any naturally occurring inversion accounting for these apparitions on a mirage basis is wholly out of the question. And beyond all this, one has to ask just what Bluebook and Menzel would like to suggest as the real objects whose images were refractively distorted into these moving discs? Their azimuth changed position by almost ninety degrees in the roughly minute and a half that Arnold watched them skim past him. To suggest that he was watching an azimuthally moving mirage through such a sector is patently absurd. Yet this is only more of the same type of absurdity that marks many more "explanations" in Bluebook files and in Menzel's books.

Case 18. White Sands, April 24, 1949

Charles B. Moore, Jr., working with several assistants, was taking pilot balloon observations of upper winds, as a part of a high-altitude balloon flight that day. Through a series of steps that will not be fully recounted here, they spotted and began tracking with their theodolite a whitish elliptical-shaped object that was moving at high angular velocity from southwest to northeast. In about 60 seconds this object moved off to the northeast, and just before passing out of sight in the 25-power telescope, its altitude angle began to slowly increase! Another balloon was immediately released to double-check the winds, but no high-speed upper jet was present to blow anything along at anything like this object's speed. I have discussed this early sighting with Moore several times. Dr. Menzel easily accounts for the whole thing on p. 33 of Ref. 8: "What Moore saw was an out-of-focus and badly astigmatic image of the balloon above," caused, he seems to tell his reader, by "lenses of air" aloft. Nonsense.

Space does not permit touching here on even a fraction of the significant early sightings that should have turned Air Force scientists toward serious attention to the UFO problem as early as 1950. Those cases can be found, in quantity, in Ref. 3, and many are fairly well treated in Ref. 1. The evidence, viewed in retrospect, is strong that unconventional objects have been around for 20 neglected years, their general nature not altering significantly in that period. I cannot begin now to pursue that extremely important related question: What about prior

to 1947? But, in brief, the answer to that appears to be that there are observations extending back to before the turn of the century that seem so similar to 1967 UFO observations that it is probable that the UFOs have been present for decades. Needless to say, if this is proved true (or highly probable) by more complete analysis of the old records, it has exceedingly important consequences.

EDITORIAL COMMENTS

As reports such as the examples just cited have come in over the years, editorial criticisms of official UFO investigations have not been absent. There has been a small, but steady, flow of editorial questioning as to whether the Air Force is really looking into this problem adequately. Occasionally these comments have carried real barbs. NICAP, in its bi-monthly bulletin, *The UFO Investigator*, reprints editorial remarks from time to time. Since ASNE members will find these of interest, I insert a number extracted from the NICAP publication and other sources at this point:

"If I had any doubts about the public's interest in Unidentified Flying Objects, I've put them aside...What it boils down to is that many, many persons agree with NICAP's hypothesis that the UFOs are 'real objects'...'under the control of living beings.'" - Charles H. Ball, Aviation Editor, Boston Traveler.

"Do you ever get the feeling that when it comes to flying saucers, the Air Force makes its denials six months in advance?" - Seattle Times.

"...the public is entitled to the best answers available. Possibly a national hearing on the matter, long sought by dedicated saucer-watchers, wouldn't be too bad an idea." - Springfield, Ohio, Sun.

"The Air Force says all sightings can be explained in terms of known phenomena and then adds that it can't explain 633 of the reports it has had. Which reminds us of the English Astronomer Royal, who spoke up in 1957 just before the Soviet Union startled the world with its first Sputnik launching: 'Space travel is utter bilge.'" - Dallas Morning News.

"If we can whiz things at the moon and other planets, it is possible that other planets are whizzing things by earth...There are many reports in USAF files made by qualified pilots who, in flight, have encountered UFOs with fantastic flight patterns. These officers are not quacks, nor are many of the intelligent people who have spotted phenomenal objects in the sky." - Meriden, Conn., Journal.

"If some of these flying objects are indeed planetary spacecraft, it is logical to assume that governmental officials, assuming they do have such evidence, may be keeping the news quiet for fear that a sudden disclosure might have drastic emotional and economic effects." - Medford, Oregon, Mail Tribune.

"They can stop kidding us now about there being no such things as 'flying saucers.'" - Ft. Worth Star-Telegram.

"The subject of UFOs remains not only an area of sustained interest but one which legitimately demands additional investigation." - Wichita Eagle.

"We think that the time has come when the Air Force's knowledge of these objects and the results of the investigations which have been carried out should be made public." - Coos Bay, Oregon, World.

"...but whatever the reason may be why the Air Force spokesmen are becoming less vocal... the time is long overdue for the Government to disclose to the public all that it knows about UFOs." - Alameda, Calif., Times-Star.

"Attempts to dismiss the reported sightings under the rationale exhibited by Project Bluebook won't solve the mystery, however, and serve only to heighten the suspicion that there's something out there the Air Force doesn't want us to know about. If Project Bluebook officials want the UFOs to go away they'd be well advised to wish on another star." - Richmond, Virginia, News-Leader.

"There is a strong belief that the military chiefs know more about unidentified flying objects than they are letting on, but are keeping it a well-guarded secret so as not to panic the public." - Shawville, Quebec, Entity.

"It's about time for Congress to hold a public investigation of this mystery....The Air Force is still adamant: everybody is imagining things." - Houston Chronicle.

"The time is long overdue for a candid disclosure of findings." - Aurora, Illinois, Beacon-News.

"...well-conducted congressional inquiry can help establish the facts and quiet needless public alarm." - Indianapolis News.

"If there is any substantial evidence that any of the sightings can be attributed to objects either intra- or extra-planetary, the Air Force should reveal it to us." - Cincinnati Enquirer.

In those sample quotes one notes an undercurrent of concern that perhaps UFOs are not being investigated adequately. Within just the past month or so a large number of UFO sightings of very unusual nature near Houston, Texas, have evoked similar comments, brought out in a good series on the problem that has run in the Houston Tribune. People down there are beginning to ask whether anyone is really checking into all these phenomenal sightings.

I base my comment on a year's detailed inquiry when I say that the answer is that no one in our Government has been taking the problem seriously enough to carry out an adequate investigation. An uneasy citizenry will find, when the facts are out, that their reports were

ignored and ridiculed and forgotten.

Note in the quoted editorials a recurrence of the hypothesis that officials at high levels do know about the UFOs and are guarding the public from some panic-triggering news. This is so far from the true situation that I find the suggestion laughable. Nobody in Washington is protecting anyone from panic. The Air Force, NASA, august scientific bodies, and all the rest, know the UFOs are a lot of nonsense.

There is no hidden truth to be disclosed because the agency assigned the responsibility to check the problem of the unidentified flying objects has incompetently done its job, has fallen victim to its own propaganda in the past dozen years, and has misled us all, since 1953.

The quotes above contain a number of pleas for a truly thorough Congressional investigation. This, I now believe, is the only approach at all capable of quickly escalating scientific study of the UFO problem to the top-level status I believe it warrants. And no stimulus for Congressional inquiry would be as potent as some firm editorial pressure from all sides of the country.

IS IT POSSIBLE THAT THE UFOS ARE EXTRA-TERRESTRIAL PROBES?

Scattered through the comments just cited, one finds remarks indicating that there may be a few editors who are speculating on whether the UFOs are extraterrestrial in origin.

I believe, on the basis of my intensive study of the UFO problem, that this hypothesis must, in fact, now be given extremely serious scientific attention.

Let me hasten to interject that I am quite familiar with all of the standard reasons as to why this hypothesis seems very remote. The solar system seems to harbor no good niches for evolution of sentient life. Recent disclosures of the lack of magnetic fields near Mars and Venus, demonstrations of the extreme tenuity of the Martian atmosphere and of the high temperatures of the Venusian atmosphere, and all else that we know of our neighbor-planets seems to argue cogently that the solar system is a most unlikely place to generate a second life-system in addition to ours - certainly unlikely to have a life-system that has gone far past us.

Within the past half-dozen years it has, somewhat amusingly, become scientifically respectable to take as axiomatic that in the billions of stellar systems within just our Galaxy alone, life must have evolved again and again, taking routes that may have gone far beyond our present civilization, culture, and technology. One can now say that safely in a scientific assemblage. But all that sentient life must be said to be way out there - not here!

The principle scientific objection to thinking that we might (ever) be visited by beings from other stellar systems is tied up with the energetics of propulsion. Edward Purcell, of Harvard, has presented a delightfully devastating analysis of the difficulties of interstellar travel (Ref. 18, p. 121 ff). I certainly am not one to give substantial rebuttal to his arguments except in one lame (but conceivably relevant) way. All of his and many others' arguments against feasibility of interstellar travel are necessarily couched in terms of present-day scientific knowledge and technology. To be sure, Purcell's type of argument seems to grant every benefit of doubt to the other side by looking far into the foreseeable future and still demolishes the idea of interstellar travel. But that adjective, "foreseeable," may be just the rub. Perhaps there are levels of technology so vastly superior to any we can now imagine that things can be done which we now regard as quite out of the question. Clearly, that is an easy argument, by which one could soon be saying that everything and anything is possible. I certainly do not resort to such arguments in my everyday work, and I should like to add that I don't care for science-fictioneering in general.

But after a year of scrutiny of highly unconventional phenomena credibly reported from all parts of this country and (I believe) from most of the entire world, I have been driven to consider possibilities that I'd ordinarily not give a moment's thought to in my own personal brand of orthodoxy. It is the UFO evidence that slowly forces the diligent UFO student to seriously consider the extraterrestrial hypothesis - evidence that I can only describe as extraordinary in its total nature. (I must confess that my chosen examples exclude a large amount of UFO phenomena that experience teaches me to omit from any brief discussion. It is simply too baffling to lay before unprepared audiences.)

All over the globe persons in all walks of life, representing a wide range of educational and cultural backgrounds are reporting, often in the face of unpleasant ridicule, sightings of objects that appear to be completely real objects yet have characteristics that match nothing about which we have present knowledge. There are still a few persons who suspect these things must be secret Air Force test vehicles. They can forget that: no test pilot would ever dream of doing the things that these objects are repeatedly doing - hovering over speeding trucks loaded with gasoline, maneuvering low over populated areas, speeding alongside Texas sheriff's cars or diving down on top of trucks and tractors and motorbikes and trains. No American test vehicles would be checked out in Australia and Poland; no Russian test vehicles would be flight-tested in Canada or Brazil. The UFOs are most definitely not secret test vehicles of superlative nature. Arnold's June, 1947 sighting involved phenomena not dissimilar from 1967 sightings. No nation came out of World War II with a secret aerodynamic technology that could have produced the craft that Arnold and hundreds of others were looking at in the summer of 1947. And then there is the whole chapter that I am here omitting concerning the pre-1947 sightings that go back to before the Wright Brothers.

And I cannot accept the psychological explanations, to which I have felt obliged to return again and again for further checking and further discussion with colleagues in psychology and related fields. My conclusion: Objects that rock aircraft at times, that leave dents in soil and railroad ties, and splash when they dive into bodies of water are not likely to be projection phenomena. And all of the animal reactions argue rather strongly against human illusory or hallucinatory explanations. Multiple-witness cases rule out hallucinations, essentially by definition. Much more could be said, but armchair speculations about psychological interpretations don't hold much weight when one goes over the whole picture very carefully.

Other alternative hypotheses of hoax, fraud and fabrication account for a few, but a percentually negligible number of UFO cases. Misinterpreted meteorological and astronomical observations and the like do account for lots of poor UFO reports, but experienced investigators learn to recognize these almost at a glance and dismiss them from further attention. It is the detailed, close-range sightings by persons whose reliability cannot be brought into serious question that carry the great weight. These are on the increase, it appears. And it seems that sightings in urban areas are on the increase. Almost no urban sightings can be found in the records for sightings of the late 1940's. In the past year there have been dozens of them. What does this all mean? What is happening? If you wish to know, do not ask Project Bluebook.

Pacing of aircraft and buzzing of cars goes on rather steadily. These cases so strongly suggest something vaguely resembling surveillance or reconnaissance that the student of the problem is forced to weigh the possibility that the UFOs are probes of some type that are engaged in something that we would loosely call "observation." There are many other categories of sightings suggesting the same tentative hypothesis. How can this be? There is, in my present opinion, no sensible alternative to the utterly shocking hypothesis that the UFOs are extraterrestrial probes from somewhere else.

WHAT'S TO BE DONE NEXT

We are 20 years behind in scientific study of this question.

Science has been assured so long that the Air Force has been studying the problem that scientists are not likely to suddenly start studying the UFO problem without new pressures to do so.

Probably nothing short of a full-scale Congressional investigation can put on record the abysmal shortcomings of the program that lay behind those 20 years of assurances.

An adequate Congressional investigation can come only from outside pressures - which will not soon emanate from science.

You members of the American Society of Newspaper Editors are in an ideal position to generate the pressures necessary to force Congressional investigation that will awaken scientists here and abroad to the real state of the UFO problem.

And then, but only then, will the problem receive the attention of the outstanding scientists of the world - who should have been devoting their efforts to unraveling this extraordinary problem for all of those twenty years that we have been ignoring this problem.

It has become my conviction that the problem of the unidentified flying objects is, indeed, the greatest scientific problem of our time.

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NOTE: A transcription of Dr. McDonald's extemporaneous talk before the ASNE (different from the above version) may be found in "Problems of Journalism," proceedings of the ASNE-1967, available for $3.50 from Mrs. De Vee K. Fisher, Assistant to the Treasurer, ASNE, 4420 Brookline Drive, Alexandria, Va. 22312. This ASNE volume also contains the remarks made by Dr. Donald Menzel and Major Hector Quintanilla at the April 22, 1967 ASNE meeting.

THE UNIVERSITY OF ARIZONA
TUCSON, ARIZONA 85721

INSTITUTE OF ATMOSPHERIC PHYSICS

June 5, 1967

Secretary-General U Thant
United Nations
United Nations Building
New York, New York

Dear Sir:

I wish to thank you again for making it possible for me to meet with the United Nations Outer Space Affairs Group on June 7, to discuss international scientific aspects of the problem of the unidentified flying objects.

Enclosed is a copy of the statement which I am submitting, on June 7, to the Outer Space Affairs Group. It summarizes briefly my reasons for urging immediate United Nations action on the UFO problem. The problem is one of very large dimensions, so a brief summary of this sort can only present in barest outline the apparent nature of the UFO problem and possible modes of scientific attack. I believe that a serious and determined effort on the part of the United Nations to assemble information on the problem and to encourage immediate scientific attention to the problem among all member Nations would be a substantial step towards removing the "ridicule lid" that is now so powerfully suppressing public reporting of many UFO sightings. Many other UN actions could and should be taken to escalate world scientific concern for the UFO problem.

As I have indicated in my enclosed statement to the Outer Space Affairs Group, I believe that very serious consideration must be given to the hypothesis that these unconventional objects constitute some form of extraterrestrial probes. Until I undertook personal study of the problem I was not able to give credence to such an hypothesis. After a year's intensive study I must still regard it as only an hypothesis, but I must emphasize that my findings drive me strongly toward the view that this may be the only presently acceptable hypothesis to account for the quite astonishing number of credibly reported low-level, close-range sightings of machine-like objects that are now on record from all over the world.

I wish to offer whatever personal assistance or counsel you or your colleagues might be able to draw from my own experience in studying this problem. The UFO problem is an eminently international scientific problem. The United Nations has, I believe, both responsibilities and obligations to accelerate serious scientific study of the UFO problem throughout the world. To many serious students of the UFO phenomena, it appears conceivable that something in the nature of a global surveillance by UFOs has been underway in recent years. If there is even a remote chance that this view is correct, then our present ignorance of the purpose and plan of such surveillance must be speedily replaced by maximal understanding of what is going on. If the entire phenomenon is of some other nature, we need to know this. Present ignorance, present neglect, present ridicule all constitute regrettable features of our collective attitudes towards what may be a matter of urgent importance to all the peoples of the world.

United Nations scrutiny of these matters is, in my opinion, urgently needed.

Respectfully yours,

James E. McDonald

James E. McDonald
Professor

Enclosure

June 7, 1967

STATEMENT ON INTERNATIONAL SCIENTIFIC ASPECTS OF THE PROBLEM OF THE UNIDENTIFIED FLYING OBJECTS, SUBMITTED ON JUNE 7, 1967 TO THE OUTER SPACE AFFAIRS GROUP, UNITED NATIONS ORGANIZATION, BY JAMES E. McDONALD, PROFESSOR, UNIVERSITY OF ARIZONA.

For twenty years there has been a puzzlingly steady flow of reports, from countries in all parts of the world, concerning what have come to be termed unidentified flying objects (UFOs). The nature of the reported objects appears to be essentially similar in all of these reports, regardless of geographic locale.

During the past twelve months, I have been carrying on an intensive examination of scientific aspects of the problem of the UFOs, as reported within the United States. After interviewing key witnesses in dozens of important cases distributed over the entire 1947-67 period, after discussing the official investigatory procedures with U. S. Air Force personnel, and after personally checking a large number of other sources of information on American sightings, I have concluded that, far from being a nonsense problem, the problem of the UFOs is one of extraordinary scientific interest.

It is my conclusion that no official group in my country has conducted an adequate investigation of this problem. This conclusion is contrary to the impressions held by many persons both within and outside the United States to the effect that a competent scientific examination of American reports was being carried out. I fear that this widespread misimpression has long held up scientific attention to a problem of great international scientific interest. I have asked for the present opportunity to appear before the Outer Space Affairs Group because I wish to urge that all possible steps be taken immediately by the United Nations Organizations, through its scientific staff and through the scientific facilities of all its member Nations, to undertake a systematic global study of the UFO problem immediately.

There is now strong indication that the number of *reports* of close-range, low altitude sightings of completely unconventional aerial objects exhibiting machine-like features and displaying inexplicable performance characteristics has been increasing in the past few years. This is certainly apparent within the United States. I have the strong impression that the same increase is evident in many foreign areas. My own studies lead me to reject categorically the view that these are merely misidentified natural atmospheric or astronomical phenomena; many official explanations to this effect are almost absurdly erroneous. Nor is it possible to explain all these sightings with hypotheses of advanced technologies or secret test vehicles, with hypotheses of hoax or fraud or fabrication, or with psychological hypotheses. Each of the latter hypotheses does come into consideration in a number of cases, but there is still left an astonishing number of other reports, made by highly credible observers over the past two decades, which cannot be so explained away. I believe that this large residuum of reports, now numbering hundreds to perhaps thousands of cases, demands the attention of the world's outstanding scientists. However, because of widespread official, journalistic, and even scientific ridicule, almost no scientific attention is currently being paid to this problem. This situation must, I urge, be altered with great despatch because the evidence, once one examines it closely as I have attempted to do in recent months, points overwhelmingly to some phenomenon about which all of us must quickly become far better informed. Official ridicule has to be replaced by high-caliber scientific scrutiny of this problem. Because of the global nature of the phenomenon, it immediately falls into areas where the United Nations Organizations must accept responsibility for encouraging immediate escalation of scientific examination of the problem.

It is my present view, based on what I believe to be sufficient scientific consideration of alternative hypotheses, that the most probable hypothesis to account for the UFO phenomena is that these are some type of surveillance probes of extraterrestrial origin.

I stress that this can, at present, be regarded only as an *hypothesis*; and against it stand many obvious scientific preconceptions, of course. I also emphasize that there are innumerable facets of the UFO phenomena which I can only describe as utterly bewildering and inexplicable in terms of present-day scientific and technological knowledge. I would also remark that if these objects are not of extraterrestrial origin, then alternative hypotheses that will demand consideration will be even more bizarre, and perhaps of even greater scientific interest to all mankind. Hence, regardless of what ultimate explanation is found for the UFO phenomena, the present scientific neglect and ridicule must be replaced by scientific concern and intensive study. My recommendation to the Outer Space Affairs Group is that it seek all possible means of securing worldwide attention to this problem.

The first need is for erasing the ridicule that is quite clearly suppressing open reporting of sightings of unconventional objects in the air and on the ground. I am personally quite familiar with the strong suppressive effects of that ridicule in my own country. My conversations with scientists and others from abroad convinces me the ridicule and scoffing in most foreign countries is comparable to that in the United States, and that only a tiny fraction of all reports are reaching official channels. This unfortunate situation must be quickly remedied, since all attempts to discern meaningful patterns of spatial and temporal distribution of the sightings are blocked at present by an obvious difficulty: One never knows whether a discerned pattern is only fortuitously related to some local and transient reduction in the ridicule with which reports are so frequently greeted.

Serious concern with an unknown and potentially very important problem must become the keynote of official handling of these UFO sightings throughout the world to eliminate the ridicule that is at present suppressing complete reporting.

Secondly, the existence of an already-available sensing system in the form of radar facilities must be recognized as exceedingly fortunate. At present, most radar sightings of UFOs are not getting into scientific hands, largely because most radar equipment is operated by military groups who have not admitted the existence of a real UFO problem and who tend, in almost all countries of the world, to ignore inexplicable high-speed radar target reports or else to withhold them from scientific attention. Understandable as this is at first glance, it must quickly be altered. No other technique now available compares with radar for gathering objective data on the movements and operating characteristics of the unidentified flying objects. One hopes that superior sensing devices will be developed as soon as the UFO problem is regarded with the seriousness it amply deserves; but for the immediate future, radar facilities offer greater promise of supplying scientific data on this problem than does any other equipment at hand.

A wide range of electromagnetic disturbances accompanying close passage or hovering of the unidentified flying objects is now on record throughout the world--despite this record not yet being admitted into what one would ordinarily call the "scientific record." Disturbance of internal-combustion engines coincident with close passage of disc-like or cylindrical unconventional objects is on record in at least several hundred instances. I know personally of dozens of quite credibly reported cases of that effect just within the United States in recent years. Often the disturbances are accompanied by broad-spectrum electromagnetic noise picked up on radio devices. In many instances compasses, both on ships and in aircraft, have been disturbed. Magnetometers and even watches have been affected. All these reports, far too numerous to cite in detail, point to some kind of electromagnetic noise or electromagnetic side-effects that offer promise for design of new sensing devices. But the latter devices will only be developed when competent engineers and physicists take seriously the rapidly growing body of reports of close-range, low-altitude sightings of these objects. Radar must be exploited in the short run, but new devices need to be developed to supply objective tracking and sensing techniques. Temporal and spatial variations in occurrences of UFO movements must be ascertained without the presently bewildering effects of psychological factors that suppress the fraction of all sightings that are openly reported. Some serious students of the UFO phenomena have been asserting for years that there are discernible patterns of UFO reconnaissance; I would grant the *appearance* of some of these patterns in the reports; but I would be unwilling to attempt to draw any firm conclusions therefrom, since I have seen too much evidence that we are getting only a very tiny fraction of all sightings openly, or even confidentially, reported.

There is curious evidence, still too inadequately studied to warrant any firm conclusions, that unconventional objects apparently rather similar in nature to those that have been reported in our global airspace in the past two decades have been seen (in much smaller numbers) prior to the 1947 epoch of marked rise in sightings. If true, this has enormously important bearing on our ultimate interpretations of what is going on in the UFO phenomenon. Scholarly examination of that evidence needs to be carried out by persons in a wide variety of disciplines, scholars familiar with various historic aspects of technology and related fields. I shall not here attempt to elaborate details, but only stress that some students of the problem have assembled cogent evidence that the UFO phenomenon may be at least a half-century old, if not longer. This remark must then be followed by emphasis on the faintly disturbing point that the frequency of sightings increased by perhaps two or three orders of magnitudes either in 1946 or 1947--for reasons which we do not now understand in the slightest degree. That ignorance may not easily be removed; but until we start serious scientific scrutiny of the UFO problem we will continue in utter ignorance of what may be a matter of the utmost concern to all mankind.

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In summary, I again express my appreciation for this opportunity to meet with you to discuss this problem. I urge that the United Nations Organization immediately undertake a review of the UFO problem, possibly through the Outer Space Affairs Group. And I hope that all member Nations will be encouraged to institute review boards and study panels to examine UFO sightings in their own countries to achieve a rapid increase in worldwide scientific attention to this problem.

If there is any way in which I can personally assist, on the basis of my own recent scientific studies of this fascinating problem, I hope that your Group will call upon me. Many others whom I know would, I believe, be equally ready to assist in such capacity, in the hope that a long-neglected problem can be quickly elevated to one of high scientific priority. I know of no other current scientific problem that is more intrinsically international in character than this problem of the nature and origin of the unidentified flying objects. Hence, it seems indispensable to secure United Nations involvement in the study of this problem, the global importance of which may be truly enormous.