Science in Default:
Twenty-Two Years of Inadequate UFO Investigations

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NO SCIENTIFICALLY ADEQUATE investigation of the UFO problem has been carried out during the entire 22 years that have now passed since the first extensive wave of sightings of unidentified aerial objects in the summer of 1947. Despite continued public interest, and despite frequent expressions of public concern, only quite superficial examinations of the steadily growing body of unexplained UFO reports from credible witnesses have been conducted in this country or abroad. The latter point is highly relevant, since all evidence now points to the fact that UFO sightings exhibit similar characteristics throughout the world.

Charging inadequacy of all past UFO investigations, I speak not only from a background of close study of the past investigations, but also from a background of three years of rather detailed personal research, involving interviews with over five hundred witnesses in selected UFO cases, chiefly in the U.S. In my opinion, the UFO problem, far from being the nonsense problem that it has often been labeled by many scientists, constitutes a problem of extraordinary scientific interest.

The grave difficulty with essentially all past UFO studies has been that they were either devoid of any substantial scientific content, or else have lost their way amidst the relatively large noise-content that tends to obscure the real signal in the UFO reports. The presence of a percentually large number of reports of misidentified natural or technological phenomena (planets, meteors, and aircraft, above all) is not surprising, given all the circumstances surrounding the UFO problem. Yet such understandable and usually easily recognized instances of misidentification have all too often been seized upon as a sufficient explanation for all UFO reports, while the residue of far more significant reports (numbering now of order one thousand) are ignored. I believe science is in default for having failed to mount any truly adequate studies of this problem, a problem that has aroused such strong and widespread public concern during the past two decades. Unfortunately, the present climate of thinking, above all since release of the latest of a long series of inadequate studies, namely, that conducted under the direction of Dr. E. U. Condon at the University of Colorado, will make it very difficult to secure any new and more thorough investigations, yet my own examination of the problem forces me to call for just such new studies. I am enough of a realist to sense that, unless the present AAAS UFO Symposium succeeds in making the scientific community aware of the seriousness of the UFO problem, little immediate response to any call for new investigation is likely to appear.

In fact, the over-all public and scientific response to the UFO phenomena is itself a matter of substantial scientific interest, above all in its social-psychological aspects. Prior to my own investigations, I would never have imagined the wide spread reluctance to report an unusual and seemingly inexplicable event, yet that reluctance, and the attendant reluctance of scientists to exhibit serious interest in the phenomena in question, are quite general. One regrettable result is the fact that the most credible of UFO witnesses are often those most reluctant to come forward with a report of the event they have witnessed. A second regrettable result is that only a very small number of scientists have taken the time and trouble to search out the really puzzling reports that tend to be diluted out by the much larger number of trivial and non-significant UFO reports. The net result is that there still exists no general scientific recognition of the scope and nature of the UFO problem.

Within the federal government, official responsibility for UFO investigations has rested with the Air Force since early 1948. Unidentified aerial objects quite naturally fall within the area of Air Force concern, so this assignment of

responsibility was basically reasonable. However, once it became clear (early 1949) that UFO reports did not seem to involve advanced aircraft of some hostile foreign power, Air Force interest subsided to relatively low levels, marked, however, by occasional temporary resurgence of interest following large waves of UFO reports, such as that of 1952, or 1957, or 1965.

A most unfortunate pattern of press reporting developed by about 1953, in which the Air Force would assert that they had found no evidence of anything "defying explanation in terms of present-day science and technology" in their growing files of UFO reports. These statements to the public would have done little harm had they not been coupled systematically to press statements asserting that "the best scientific facilities available to the U.S. Air Force" had been and were being brought to bear on the UFO question. The assurances that substantial scientific competence was involved in Air Force UFO investigations have, I submit, had seriously deleterious scientific effects. Scientists who might otherwise have done enough checking to see that a substantial scientific puzzle lay in the UFO area were misled by these assurances into thinking that capable scientists had already done adequate study and found nothing. My own extensive checks have revealed so slight a total amount of scientific competence in two decades of Air Force-supported investigations that I can only regard the repeated asseverations of solid scientific study of the UFO problem as the single most serious obstacle that the Air Force has put in the way of progress towards elucidation of the matter.

I do not believe, let me stress, that this has been part of some top-secret cover-up of extensive investigations by Air Force or security agencies; I have found no substantial basis for accepting that theory of why the Air Force has so long failed to respond appropriately to the many significant and scientifically intriguing UFO reports coming from within its own ranks. Briefly, I see grand foul-up but not grand cover-up. Although numerous instances could be cited wherein Air Force spokesmen failed to release anything like complete details of UFO reports, and although this has had the regrettable consequence of denying scientists at large even a dim notion of the almost incredible nature of some of the more impressive Air Force-related UFO reports, I still feel that the most grievous fault of 22 years of Air Force handling of the UFO problem has consisted of their repeated public assertions that they had substantial scientific competence on the job.

Close examination of the level of investigation and the level of scientific analysis involved in Project Sign (1948–9), Project Grudge (1949–52), and Project Bluebook (1953 to date), reveals that these were, viewed scientifically, almost meaningless investigations. Even during occasional periods (e.g., 1952) characterized by fairly active investigation of UFO cases, there was still such slight scientific expertise involved that there was never any real chance that the puzzling phenomena encountered in the most significant UFO cases would be elucidated. Furthermore, the panels, consultants, contractual studies, etc., that the Air Force has had working on the UFO problem over the past 22 years have, with essentially no exception, brought almost negligible scientific scrutiny into the picture. Illustrative examples will be given.

The Condon Report, released in January, 1968, after about two years of Air Force-supported study is, in my opinion, quite inadequate. The sheer bulk of the Report, and the inclusion of much that can only be viewed as "scientific padding," cannot conceal from anyone who studies it closely the salient point that it represents an examination of only a tiny fraction of the most puzzling UFO reports of the past two decades, and that its level of scientific argumentation is wholly unsatisfactory. Furthermore, of the roughly 90 cases that it specifically confronts, over 30 are conceded to be unexplained. With so large a fraction of unexplained cases (out of a sample that is by no means limited only to the truly puzzling cases, but includes an objectionably large number of obviously trivial cases), it is far from clear how Dr. Condon felt justified in concluding that the study indicated "that further extensive study of UFOs probably cannot be justified in the expectation that science will be advanced thereby."

I shall cite a number of specific examples of cases from the Condon Report which I regard as entirely inadequately investigated and reported. One at Kirtland AFB, November 4, 1957, involved observations of a wingless egg-shaped object that was observed hovering about a minute over the field prior to departure at a climb rate which was described to me as faster than that of any known jets, then or now. The principal witnesses in this case were precisely the type of witnesses whose accounts warrant closest attention, since they were CAA tower observers who watched the UFO from the CAA tower with binoculars. Yet, when I located these two men in the

course of my own check of cases from the Condon Report, I found that neither of them had even been contacted by members of the University of Colorado project! Both men were fully satisfied that they had been viewing a device with performance characteristics well beyond anything in present or foreseeable aeronautical technology. The two men gave me descriptions that were mutually consistent and that fit closely the testimony given on Nov. 6, 1957, when they were interrogated by an Air Force investigator. The Condon Report attempts to explain this case as a light-aircraft that lost its way, came into the field area, and then left. This kind of explanation runs through the whole Condon Report, yet is wholly incapable of explaining the details of sightings such as that of the Kirtland AFB incident. Other illustrative instances in which the investigations summarized in the Condon Report exhibit glaring deficiencies will be cited. I suggest that there are enough significant unexplainable UFO reports just within the Condon Report itself to document the need for a greatly increased level of scientific study of UFOs.

That a panel of the National Academy of Sciences could endorse this study is to me disturbing. I find no evidence that the Academy panel did any independent checking of its own; and none of that 11-man panel had any significant prior investigative experience in this area, to my knowledge. I believe that this sort of Academy endorsement must be criticized; it hurts science in the long run, and I fear that this particular instance will ultimately prove an embarrassment to the National Academy of Sciences.

The Condon Report and its Academy endorsement have exerted a highly negative influence on clarification of the long-standing UFO problem; so much, in fact, that it seems almost pointless to now call for new and more extensive UFO investigations. Yet the latter are precisely what are needed to bring out into full light of scientific inquiry a phenomenon that could well constitute one of the greatest scientific problems of our times.

Some examples of UFO cases conceded to be unexplainable in the Condon Report and containing features of particularly strong scientific interest: Utica, N.Y., 6/23/55; Lakenheath, England, 8/13/56; Jackson, Ala., 11/14/56; Norfolk, Va., 8/30/57; RB-47 case, 9/19/57; Beverly Mass., 4/22/66; Donnybrook, N.D., 8/19/66; Haynesville, La., 12/30/66; Joplin, Mo., 1/13/67; Colorado Springs, Colo., 5/13/67.

Some examples of UFO cases considered explained in the Condon Report for which I would take strong exception to the argumentation presented and would regard as both unexplained and of strong scientific interest: Flagstaff, Ariz., 5/20/50; Washington, D. C., 7/19/52; Bellefontaine, O., 8/1/52; Haneda AFB, Japan, 8/5/52; Gulf of Mexico, 12/6/52; Odessa, Wash., 12/10/52; Continental Divide, N.M., 1/26/53; Seven Isles, Quebec, 6/29/54; Niagara Falls, N.Y., 7/25/57; Kirtland AFB, N.M., 11/4/57; Gulf of Mexico, 11/5/57; Peru, 12/30/66; Holloman AFB, 3/2/67; Kincheloe AFB, 9/11/67; Vandenberg AFB, 10/6/67; Milledgeville, Ga., 10/20/67.

Illustrative Cases

The following treats in detail the four principal UFO cases referred to in my Symposium talk. They are presented as specific illustrations of what I regard as serious shortcomings of case-investigations in the Condon Report and in the 1947-69 Air Force UFO program. The four cases used as illustrations are the following:

1. RB-47 case, Gulf Coast area, Sept. 19, 1957
2. Lakenheath RAF Station, England, August 13–14, 1956
3. Haneda AFB, Japan, August 5–6, 1952
4. Kirtland AFB, New Mexico, Nov. 4, 1957

My principal conclusions are that scientific inadequacies in past years of UFO investigations by Air Force Project Bluebook have *not* been remedied through publication of the Condon Report, and that there remain scientifically very important unsolved problems with respect to UFOs. The investigative and evaluative deficiencies illustrated in the four cases examined in detail are paralleled by equally serious shortcomings in many other cases in the sample of about 90 UFO cases treated in the Condon Report. Endorsement of the conclusions of the Condon

Report by the National Academy of Sciences appears to have been based on entirely superficial examination of the Report and the cases treated therein. Further study, conducted on a much more sound scientific level are needed.

Case 1. USAF RB-47, Gulf Coast area, September 19–20, 1957

Brief summary: An Air Force RB-47, equipped with ECM (Electronic Countermeasures) gear, manned by six officers, was followed over a total distance in excess of 600 miles and for a time period of more than an hour, as it flew from near Gulfport, Miss., through Louisiana and Texas, and into southern Oklahoma. The unidentified object was, at various times, seen visually by the cockpit crew (as an intense white or red light), followed by ground-radar, and detected on ECM monitoring gear aboard the RB-47. Simultaneous appearances and disappearances on all three of those physically distinct "channels" mark this UFO case as especially intriguing from a scientific viewpoint. The incident is described as Case 5 in the Condon Report and is conceded to be unexplained. The full details, however, are not presented in that Report.

Summary of the Case

The case is long and involved and filled with well-attested phenomena that defy easy explanation in terms of present-day science and technology. The RB-47 was flying out of Forbes AFB, Topeka, on a composite mission including gunnery exercises over the Texas-Gulf area, navigation exercises over the open Gulf, and ECM exercises in the return trip across the south-central U.S. This was an RB-47 carrying a six-man crew, of whom three were electronic warfare officers manning ECM (Electronic counter-measures) gear in the aft portion of the aircraft. One of the extremely interesting aspects of this case is that electromagnetic signals of distinctly radar-like character appeared definitely to be emitted by the UFO, yet it exhibited performance characteristics that seem to rule out categorically its having been any conventional or secret aircraft.
I have discussed the incident with all six officers of the crew:

Lewis D. Chase, pilot, Spokane, Wash.

James H. McCoid, copilot, Offutt AFB

Thomas H. Hanley, navigator, Vandenberg AFB

John J. Provenzano, No. 1 monitor, Wichita

Frank B. McClure, No. 2 monitor, Offutt AFB

Walter A. Tuchscherer, No. 3 monitor, Topeka

Chase was a Major at the time; I failed to ask for information on 1957 ranks of the others. McClure and Hanley are currently Majors, so might have been Captains or Lieutenants in 1957. All were experienced men at the time. Condon Project investigators only talked with Chase, McCoid, and McClure, I ascertained. In my checking it proved necessary to telephone several of them more than once to pin down key points; nevertheless the total case is so complex that I would assume that there are still salient points not clarified either by the Colorado investigators or by myself. Unfortunately, there appears to be no way at present to locate the personnel involved in ground-radar observations that are a very important part of the whole case. I shall discuss that point below.

This flight occurred in September 1957, just prior to the crew's reassignment to a European base. On questioning by Colorado investigators, flight logs were consulted, and based on the recollection that this flight was within a short time of departure from Forces to Germany, (plus the requirement that the date match a flight of the known type and geography) the 9/19/57 date seems to have emerged. The uncertainty as to whether it was early on the 19th or early on the 20th, cited above is a point of confusion I had not noted until preparing the present notes. Hence I am unable to add any clarification, at the moment; in this matter of the date confusion found in Thayer's discussion of the case

(1, pp. 136–138). I shall try to check that in the near future. For the present, it does not vitiate case-discussion in any significant way.

The incident is most inadequately described in the Condon Report. The reader is left with the general notion that the important parts occurred near Ft. Worth, an impression strengthened by the fact that both Crow and Thayer discuss meteorological data only for that area. One is also left with no clear impression of the duration, which was actually over an hour. The incident involved an unknown airborne object that stayed with the RB-47 for over 600 miles. In case after case in the Condon Report, close checking reveals that quite significant features of the cases have been glossed over, or omitted, or in some instances seriously misrepresented. I submit that to fail to inform the reader that this particular case spans a total distance-range of some 600 miles and lasted well over an hour is an omission difficult to justify.

From my nine separate interviews with the six crew members, I assembled a picture of the events that makes it even more puzzling than it seems on reading the Condon Report — and even the latter account is puzzling enough.

Just as the aircraft crossed the Mississippi coast near Gulfport, McClure, manning the #2 monitor, detected a signal near their 5 o'clock position (aft of the starboard beam). It looked to him like a legitimate ground-radar signal, but corresponded to a position out in the Gulf. This is the actual beginning of the complete incident; but before proceeding with details it is necessary to make quite clear what kind of equipment we shall be talking about as we follow McClure's successive observations.

Under conditions of war, bombing aircraft entering hostile territory can be assisted in their penetrations if any of a variety of electronic countermeasures (ECM techniques as they are collectively termed) are brought into action against ground-based enemy radar units. The initial step in all ECM operations is, necessarily, that of detecting the enemy radar and quantitatively identifying a number of relevant features of the radar system (carrier frequency, pulse repetition frequency, scan rate, pulse width) and, above all, its bearing relative to the aircraft heading. The latter task is particularly ample in principle, calling only for direction-finding antennas, which pick up the enemy signal and display on a monitor scope inside the reconnaissance aircraft a blip or lobe that paints in the relative bearing from which the signal is coming.

The ECM gear used in RB-47's in 1957 is not now classified; the #2 monitor that McClure was on, he and the others pointed out, involved an ALA-6 direction-finder with back-to-back antennas in a housing on the undersurface of the RB-47 near the rear, spun at either 150 or 300 rpm as it scanned in azimuth. Inside the aircraft, its signals were processed in an APR-9 radar receiver and an ALA-5 pulse analyzer. All later references to the #2 monitor imply that system. The #1 monitor employed an APD-4 direction finding system, with a pair of antennas permanently mounted on either wing tip. Provenzano was on the #1 monitor. Tuchscherer was on the #3 monitor, whose specifications I did not ascertain because I could find no indication that it was involved in the observations.

Returning now to the initial features of the UFO episode, McClure at first thought he had 180-degree ambiguity in his scope, i.e., that the signal whose lobe painted at his 5 o'clock position was actually coming in from the 11 o'clock position perhaps from some ground radar in Louisiana. This suspicion, he told me, was temporarily strengthened as he became aware that the lobe was moving upscope. (It is important here and in features of the case cited below to understand how a fixed ground-radar paints on the ECM monitor scope as the reconnaissance aircraft flies toward its general direction: Suppose the ground radar is, at some instant, located at the 1 o'clock position relative to the moving aircraft, i.e., slightly off the starboard bow. As the aircraft flies along, the relative bearing steadily changes, so that the fixed ground unit is "seen" successively at the 2 o'clock, the 3 o'clock, and the 4 o'clock positions, etc. The lobe paints on the monitor scope at these successive relative azimuths, the 12 o'clock position being at the top of the scope, 3 o'clock at the right, etc. Thus any legitimate signal from a fixed ground radar must move downscope, excluding the special cases in which the radar is dead ahead or dead astern. Note carefully that we deal here only with direction finding gear. Range is unknown; we are not here speaking of airborne radar set, just a radar-frequency direction-finder. In practice, range is obtained by triangulation computations based on successive fixes and known aircraft speed.)

As the lobe continued moving *upscope*, McClure said the strength of the incoming signal and its pulse characteristics all tended to confirm that this was some ground unit being painted with 180-degree ambiguity for some unknown electronic reason. It was at 2800 megacycles, a common frequency for S-band search radars.

However, after the lobe swung dead ahead, his earlier hypothesis had to be abandoned for it continued swinging over to the 11 o'clock position and continued downscope on the port side. Clearly, no 180-degree ambiguity was capable of accounting for this. Curiously, however, this was so anomalous that McClure did not take it very seriously and did not at that juncture mention it to the cockpit crew nor to his colleagues on the other two monitors. This upscope–downscope "orbit" of the unknown was seen only on the ALA-6, as far as I could establish. Had nothing else occurred, this first and very significant portion of the whole episode would almost certainly have been forgotten by McClure.

The signal faded as the RB-47 headed northward to the scheduled turning point over Jackson, Miss. The mission called for simulated detection and ECM operations against Air Force ground radar units all along this part of the flight plan, but other developments intervened. Shortly after making their turn westward over Jackson, Miss., Chase noted what he thought at first were the landing lights of some other jet coming in from near his 11 o'clock position, at roughly the RB-47's altitude. But no running lights were discernible and it was a single very bright white light, closing fast. He had just alerted the rest of the crew to be ready for sudden evasive maneuvers, when he and McCoid saw the light almost instantaneously change directions and rush across from left to right at an angular velocity that Chase told me he'd never seen matched in his flight experience. The light went from their 11 o'clock to the 2 o'clock position with great rapidity, and then blinked out.

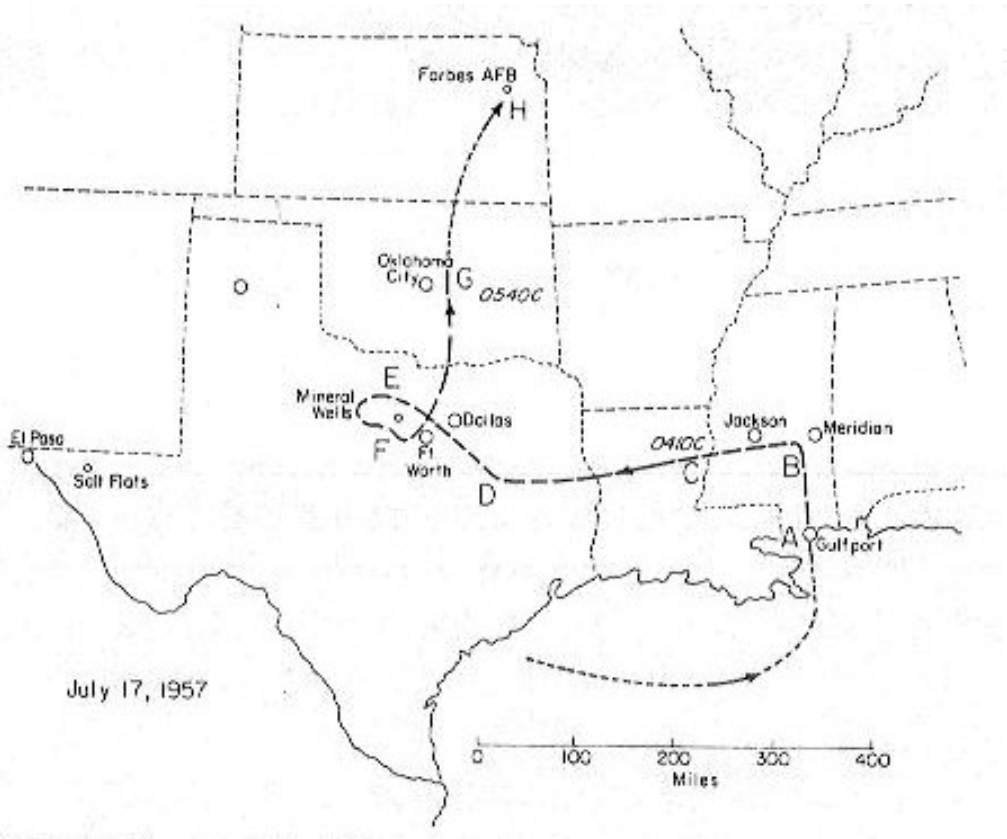

Figure 5-1. Map of July 17, 1957, UFO episode.

Immediately after that, Chase and McCoid began talking about it on the interphone and McClure, recalling the unusual 2800 megacycle signal that he had seen over Gulfport now mentioned that peculiar incident for the first time to Chase and McCoid. It occurred to him at that point to set his #2 monitor to scan at 2800 mcs. On the first scan, McClure told me, he got a strong 2800 mcs signal from their 2 o'clock position, the bearing on which the luminous unknown object had blinked out moments earlier.

Provenzano told me that right after that they had checked out the #2 monitor on valid ground radar stations to be sure it was not malfunctioning and it appeared to be in perfect order. He then checked on his #1 monitor and also got a signal from the same bearing. There remained, of course, the possibility that just by chance, this signal was from a real radar down on the ground and off in that direction. But as the minutes went by, and the aircraft continued westward at about 500 kts. the relative bearing of the 2800 mcs source did not move downscope on the #2 monitor, but kept up with them.

This quickly led to a situation in which the entire 6-man crew focused all attention on the matter; the incident is still vivid in the minds of all the men, though their recollection for various details varies with the particular activities they were engaged in. Chase varied speed, to see if the relative bearing would change but nothing altered. After over a hundred miles of this, with the 2800 mcs source keeping pace with the aircraft, they were getting into the radar-coverage area of the Carswell AFB GCI (Ground Controlled Intercept) unit and Chase radioed that unit to ask if they showed any other air traffic near the RB-47. Carswell GCI immediately came back with the information that there was apparently another aircraft about 10 miles from them at their 2 o'clock position. (The RB-47 was unambiguously identifiable by its IFF signal; the "other aircraft" was seen by "skin paint" Only, i.e., by direct radar reflection rather than via an IFF transponder, Col. Chase explained.)

This information, each of the men emphasized to me in one way or another, made them a bit uneasy for the first time. I asked McClure a question that the Colorado investigators either failed to ask or did not summarize in their report. Was the signal in all respects comparable to that of a typical ground radar? McClure told me that this was what baffled him the most, then and now. All the radar signature characteristics, as read out on his ALA-5 pulse analyser, were completely normal — it had a pulse repetition frequency and pulse width like a CPS-6B and even simulated a scan rate: But its intensity, McClure pointed out, was so strong that "it would have to had an antenna bigger than a bomber to put out that much signal." And now, the implications of the events over Gulfport took on new meaning. The upscope–downscope sweep of his #2 monitor lobe implied that this source, presuming it to be the same one now also being seen on ground radar at Carswell GCI, had flown a circle around the RB-47 at 30–35,000 ft altitude while the aircraft was doing about 500 kts.

Shortly after Carswell GCI began following the two targets, RB-47 and unknown, still another significant action unfolded. McClure suddenly noted the lobe on the #2 monitor was beginning to go upscope, and almost simultaneously, Chase told me, GCI called out that the second airborne target was starting to move forward. Keep in mind that no visual target was observable here; after blinking out at the 12 o'clock position, following its lightning-like traverse across the nose of the aircraft, no light had been visible. The unknown now proceeded to move steadily around to the 12 o'clock position, followed all the while on the #2 monitor and on the GCI scope down at Carswell near Ft. Worth.

As soon as the unknown reached the 12 o'clock position, Chase and McCoid suddenly saw a bright red glow "bigger than a house," Chase said, and lying dead ahead, precisely the bearing shown on the passive radar direction-finder that McClure was on and precisely the bearing now indicated on the GCI scope. *Three independent sensing systems* were at this juncture giving seemingly consistent-indications: two pairs of human eyes, a ground radar, and a direction-finding radar receiver in the aircraft.

One of the important points not settled by the Colorado investigations concerned the question of whether the unknown was ever painted on any radar set on the RB-47 itself. Some of the men thought the navigator had seen it on his set, others were unsure. I eventually located Maj. Hanley at Vandenberg and he informed me that all through the incident, which he remembered very well, he tried, unsuccessfully to pick up the unknown on his navigational radar (K-system). I shall not recount all of the details of his efforts and his comments, but only mention the end result of my two telephone interviews with him. The important question was what sort of effective range that set

had. Hanley gave the pertinent information that it could just pick up a large tanker of the KC-97 type at about 4 miles range, when used in the "altitude-hold" mode, with antenna tipped up to maximum elevation. But both at the start of its involvement and during the object's swing into the 12 o'clock position, GCI showed it remaining close to 10 miles in range from the RB-47. Thus Hanley's inability to detect it on his K-system navigational radar in altitude hold only implies that whatever was out there had a radar cross-section that was less than about 16 times that of a KC-97 (roughly twice 4 miles, inverse 4th-power law), The unknown gave a GCI return that suggested a cross-section comparable to an ordinary aircraft, Chase told me, which is consistent with Hanley's non-detection of the object. The Condon Report gives the impression the navigator did detect it, but this is not correct.

I have in my files many pages of typed notes on my interviews, and cannot fill in all of the intriguing details here. Suffice it to say that Chase then went to maximum allowable power, hoping to close with the unknown, but it just stayed ahead at about 10 miles as GCI kept telling them; it stayed as a bright red light dead ahead, and it kept painting as a bright lobe on the top of McClure's ALA-6 scope. By this time they were well into Texas still at about 35,000 ft and doing upwards of 500 knots, when Chase saw it begin to veer to the right and head between Dallas and Ft. Worth. Getting FAA clearance to alter his own flight plan and to make sure other jet traffic was out of his way, he followed its turn, and then realized he was beginning to close on it for the first time. Almost immediately GCI told him the unknown had stopped moving on the ground-radarscope. Chase and McCoid watched as they came almost up to it. Chase's recollections on this segment of the events were distinctly clearer than McCoid's. McCoid was, of course, sitting aft of Chase and had the poorer view; also he said he was doing fuel-reserve calculations in view of the excess fuel-use in their efforts to shake the unknown, and had to look up from the lighted cockpit to try to look out intermittently, while Chase in the forward seat was able to keep it in sight more nearly continuously. Chase told me that he'd estimate that it was just ahead of the RB-47 and definitely below them when it instantaneously blinked out, At that same moment McClure announced on the interphone that he'd lost the 2800 mcs signal, and GCI said it had disappeared from their scope. Such simultaneous loss of signal on what we can term three separate channels is most provocative, most puzzling.

Putting the aircraft into a left turn (which Chase noted consumes about 15–20 miles at top speed), they kept looking back to try to see the light again. And, about halfway through the turn (by then the aircraft had reached the vicinity of Mineral Wells, Texas, Chase said), the men in the cockpit suddenly saw the bright red light flash on again, back along their previous flight path but distinctly lower, and simultaneously GCI got a target again and McClure started picking up a 2800 mcs signal at that bearing: (As I heard one after another of these men describe all this, I kept trying to imagine how it was possible that Condon could listen, at the October, 1967, plasma conference at the UFO Project, as Col. Chase recounted all this and shrug his shoulders and walk out.)

Securing permission from Carswell GCI to undertake the decidedly non-standard maneuver of diving on the unknown, Chase put the RB-47 nose down and had reached about 20,000 ft, he recalls, when all of a sudden the light blinked out, GCI lost it on their scope, and McClure reported loss of signal on the #2 monitor: Three-channel consistency once more.

Low on fuel, Chase climbed back up to 25,000 and headed north for Oklahoma. He barely had it on homeward course when McClure got a blip dead astern and Carswell radioed that they had a target once more trailing the RB-47 at about 10 miles. Rear visibility from the topblisters of the RB-4 now precluded easy visual check, particularly if the unknown was then at lower altitude (Chase estimated that it might have been near 15,000 ft when he lost it in the dive). It followed them to southern Oklahoma and then disappeared.

Discussion

This incident is an especially good example of a UFO case in which observer credibility and reliability do not come into serious question, a case in which more than one (here three) channel of information figures in the overall observations, and a case in which the reported phenomena appear to defy explanation in terms of either natural or technological phenomena.

In the Condon Report, the important initial incident in which the unknown 2800 MC source appeared to orbit the RB-47 near Gulfport is omitted. In the Condon Report, the reader is given no hint that the object was with the

aircraft for over 600 miles and for over an hour. No clear sequence of these events is spelled out, nor is the reader made aware of all of the "three-channel" simultaneous appearances or disappearances that were so emphatically stressed to me by both Chase and McClure in my interviews with them. But even despite those degrees of incompleteness, any reader of the account of this case in the Condon Report must wonder that an incident of this sort could be left as unexplained and yet ultimately treated, along with the other unexplained cases in that Report, as calling for no further scientific attention.

Actually, various hypotheses (radar anomalies, mirage effects) are weighed in one part of the Condon Report where this case is discussed separately (pp. 136–138). But the suggestion made there that perhaps an inversion near 2 km altitude was responsible for the returns at the Carswell GCI unit is wholly untenable. In an Appendix, a very lengthy but non-relevant discussion of ground return from anomalous propagation appears; in fact, it is so unrelated to the actual circumstances of this case as to warrant no comment here. Chase's account emphasized that the GCI radar(s) had his aircraft and the unknown object on-scope for a total flight-distance of the order of several hundred miles, including a near overflight of the ground radar. With such wide variations in angles of incidence of the ground-radar beam on any inversion or duct, however intense, the possibility of anomalous propagation effects yielding a consistent pattern of spurious echo matching the reported movements and the appearances and disappearances of the target is infinitesimal. And the more so in view of the simultaneous appearances and disappearances on the ECM gear and via visible emissions from the unknown. To suggest, as is tentatively done on p. 138 that the "red glow" might have been a "mirage of Oklahoma City," when the pilot's description of the luminous source involves a wide range of viewing angles, including two instances when he was viewing it at quite large depression angles, is wholly unreasonable. Unfortunately, that kind of casual ad hoc hypothesizing with almost no attention to relevant physical considerations runs all through the case-discussions in the treatment of radar and optical cases in the Condon Report, frequently (though not in this instance) being made the basis of "explanations" that are merely absurd. On p. 265 of the Report, the question of whether this incident might be explained in terms of any "plasma effect" is considered but rejected. In the end, this case is conceded to be unexplained.

No evidence that a report on this event reached Project Bluebook was found by the Colorado investigators. That may seem hard to believe for those who are under the impression that the Air Force has been diligently and exhaustively investigating UFO reports over the past 22 years. But to those who have examined more closely the actual levels of investigation, lack of a report on this incident is not so surprising. Other comparable instances could be cited, and still more where the military aircrews elected to spare themselves the bother of interrogation, by not even reporting events about as puzzling as those found in this RB-47 incident.

But what is of greatest present interest is the point that here we have a well-reported, multi-channel, multiple-witness UFO report, coming in fact from within the Air Force itself, investigated by the Condon Report team, conceded to be unexplained, and yet it is, in final analysis, ignored by Dr. Condon. In no section of the report specifically written by the principal investigator does he even allude to this intriguing case. My question is how such events can be written off as demanding no further scientific study. To me, such cases seem to cry out for the most intensive scientific study — and the more so because they are actually so much more numerous than the scientific community yet realizes. There is a scientific mystery here that is being ignored and shoved under the rug; the strongest and most unjustified shove has come from the Condon Report. "unjustified" because that report itself contains so many scientifically puzzling unexplained cases (approximately 30 out of 90 cases considered) that it is extremely difficult to understand how its principal investigator could have construed the contents of the report as supporting a view that UFO studies should be terminated.

Case 2. Lakenheath and Bentwaters RAF/USAF units; England, August 13–14, 1956

Brief summary: Observations of unidentified objects by USAF and RAF personnel, extending over 5 hours, and involving ground-radar, airborne-radar, ground visual and airborne-visual sightings of high-speed unconventionally maneuvering objects in the vicinity of two RAF stations at night. It is Case 2 in the Condon Report and is there conceded to be unexplained.

Introduction

This case will illustrate, in significant ways, the following points:

a) It illustrates the fact that many scientifically intriguing UFO reports have lain in USAF/Bluebook files for years without knowledge thereof by the scientific community.

b) It represents a large subset of UFO cases in which all of the observations stemmed from military sources and which, had there been serious and competent scientific interest operating in Project Bluebook, could have been very thoroughly investigated while the information was fresh. It also illustrates the point that the actual levels of investigation were entirely inadequate in even as unexplainable and involved cases as this one.

c) It illustrates the uncomfortably incomplete and internally inconsistent features that one encounters in almost every report of its kind in the USAF/Bluebook files at Wright-Patterson AFB, features attesting to the dearth of scientific competence in the Air Force UFO investigations over the past 20 years.

d) It illustrates, when the original files are carefully studied and compared with the discussion thereof in the Condon Report, shortcomings in presentation and critique given many cases in the Condon Report.

e) Finally, I believe it illustrates an example of those cases conceded to be unexplainable by the Condon Report that argue need for much more extensive and more thorough scientific investigation of the UFO problem, a need negated in the Condon Report and in the Academy endorsement thereof.

My discussion of this case will be based upon the 30-page Bluebook case-file, plus certain other information presented on it in the Condon Report. This "Lakenheath case" was not known outside of USAF circles prior to publication of the Condon Report. None of the names of military personnel involved are given in the Condon Report. (Witness names, dates, and locales are deleted from all of the main group of cases in that Report, seriously impeding independent scientific check of case materials.) I secured copies of the case-file from Bluebook, but all names of military personnel involved in the incident were cut out of the Xerox copies prior to releasing the material to me. Hence I have been unable to interview personally the key witnesses. However, there is no indication that anyone on the Colorado project did any personal interviews, either; so it would appear I have had access to the same basic data used in the Condon Report's treatment of this extremely interesting case.

For no justified reason, the Condon Report not only deletes witness names, but also names of localities of the UFO incidents in its main sample of 59 cases. In this Lakenheath case, deletion of locality names creates much confusion for the reader, since three distinct RAF stations figure in, the incident and since the discharged non-commissioned officer from whom they received first word of this UFO episode confused the names of two of those stations in his own account that appears in the Condon Report. That, plus other reportorial deficiencies in the presentation of the Lakenheath case in the Condon Report, will almost certainly have concealed its real significance from most readers of the Report.

Unfortunately, the basic Bluebook file is itself about as confusing as most Bluebook files on UFO cases. I shall attempt to mitigate as many of those difficulties as I can in the following, by putting the account into better over-all order than one finds in the Condon Report treatment.

General Circumstances

The entire episode extended from about 2130Z, August 13, to 0330Z, August 14, 1956; thus this is a nighttime case. The events occurred in east-central England, chiefly in Suffolk. The initial reports centered around Bentwaters RAF Station, located about six miles east of Ipswich, near the coast, while much of the subsequent action centers around Lakenheath RAF Station, located some 20 miles northeast of Cambridge. Sculthorpe RAF Station also figures in the account, but only to a minor extent; it is near Fakenham, in the vicinity of The Wash. GCA (Ground Controlled Approach) radars at two of those three stations were involved in the ground-radar sightings, as was an

RTCC (Radar Traffic Control Center) radar unit at Lakenheath. The USAF non-com who wrote to the Colorado Project about this incident was a Watch Supervisor on duty at the Lakenheath RTCC unit that night. His detailed account is reproduced in the Condon Report (pp. 248–251). The Report comments on "the remarkable accuracy of the account of the witness as given in (his reproduced letter), which was apparently written from memory 12 years after the incident." I would concur, but would note that, had the Colorado Project only investigated more such striking cases of past years, it would have found many other witnesses in UFO cases whose vivid recollections often match surprising well checkable contemporary accounts. My experience thereon has been that, in multiple-witness cases where one can evaluate consistency of recollections, the more unusual and inexplicable the original UFO episode, the more it impressed upon the several witnesses' memories a meaningful and still-useful pattern of relevant recollections. Doubtless, another important factor operates: the UFO incidents that are the most striking and most puzzling probably have been discussed by the key witnesses enough times that their recollections have been thereby reinforced in a useful way.

The only map given in the Condon Report is based on a sketch-map made by the non-com who alerted them to the case. It is misleading, for Sculthorpe is shown 50 miles east of Lakenheath, whereas it actually lies 30 miles north-northeast. The map does not show Bentwaters at all; it is actually some 40 miles east-southeast of Lakenheath. Even as basic items as those locations do not appear to have been ascertained by those who prepared the discussion of this case in the Condon Report, which is most unfortunate, yet not atypical.

That this incident was subsequently discussed by many Lakenheath personnel was indicated to me by a chance event. In the course of my investigations of another radar UFO case from the Condon Report, that of 9/11/67 at Kincheloe AFB, I found that the radar operator involved therein had previously been stationed with the USAF detachment at Lakenheath and knew of the events at second-hand because they were still being discussed there by radar personnel when he arrived many months later.

Initial Events at Bentwaters, 2130Z to 2200Z

One of the many unsatisfactory aspects of the Condon Report is its frequent failure to put before the reader a complete account of the UFO cases it purports to analyze scientifically. In the present instance, the Report omits all details of three quite significant radar-sightings made by Bentwaters GCA personnel prior to their alerting the Lakenheath GCA and RTCC groups at 2255 LST. This omission is certainly not because of correspondingly slight mention in the original Bluebook case-file; rather, the Bentwaters sightings actually receive more Bluebook attention than the subsequent Lakenheath events. Hence, I do not see how such omissions in the Condon Report can be justified.

A. *First radar sighting, 2130Z.* Bentwaters GCA operator, A/2c _____ (I shall use a blank to indicate the names razor-bladed out of my copies of the case-file prior to release of the file items to me), reported picking up a target 25–30 miles ESE, which moved at very high speed on constant 295 deg. heading across his scope until he lost it 15–20 miles to the NW of Bentwaters. In the Bluebook file, A/2c _____ is reported as describing it as a strong radar echo, comparable to that of a typical aircraft, until it weakened near the end of its path across his scope. He is quoted as estimating a speed of the order of 4000 mph, but two other cited quantities suggest even higher speeds. A transit time of 30 seconds is given, and if one combines that with the reported range of distance traversed, 40–50 miles, a speed of about 5000–6000 mph results. Finally, A/2c _____ stated that it covered about 5-6 miles per sweep of the AN/MPN-llA GCA radar he was using. The sweep-period for that set is given as 2 seconds (30 rpm), so this yields an even higher speed- estimate of about 9000 mph. (Internal discrepancies of this sort are quite typical of Bluebook case-files, I regret to say. My study of many such files during the past three years leaves me no conclusion but that Bluebook work has never represented high-caliber scientific work, but rather has operated as a perfunctory bookkeeping and filing operation during most of its life. Of the three speed figures just mentioned, the latter derives from the type of observation most likely to be reasonably accurate, in my opinion. The displacement of a series of successive radar blips on a surveillance radar such as the MPN-11A, can be estimated to perhaps a mile or so with little difficulty, when the operator has as large a number of successive blips to work with as is here involved.

Nevertheless, it is necessary to regard the speed as quite uncertain here, though presumably in the range of several thousand miles pr hour and hence not associable with any conventional aircraft, nor with still higher-speed meteors either.)

B. *Second radar sighting, 2130-2155Z.* A few minutes after the preceding event, T/Sgt _____ picked up on the same MPN-11A a group of 12-15 objects about 8 miles SW of Bentwaters. In the report to Bluebook, he pointed out that "these objects appeared as normal targets on the GCA scope and that normal checks made to determine possible malfunctions of the GCA radar failed to indicate anything was technically wrong." The dozen or so objects were moving together towards the NE at varying speeds, ranging between 80 and 125 mph, and "the 12 to 15 unidentified objects were preceded by 3 objects which were in a triangular formation with an estimated 1000 feet separating each object in this formation." The dozen objects to the rear "were scattered behind the lead formation of 3 at irregular intervals with the whole group simultaneously covering a 6 to 7 mile area," the official report notes.

Consistent radar returns came from this group during their 25-minute movement from the point at which they were first picked up, 8 mi. SW, to a point about 40 mi. NE of Bentwaters, their echoes decreasing in intensity as they moved off to the NE. When the group reached a point some 40 mi. NE, they all appeared to converge to form a single radar echo whose intensity is described as several times larger than a B-36 return under comparable conditions. Then motion ceased, while this single strong echo remained stationary for 10–15 minutes. Then it resumed motion to the NE for 5-6 miles, stopped again for 3-5 minutes, and finally moved northward and off the scope.

C. *Third radar sighting, 2200Z.* Five minutes after the foregoing formation moved off-scope, T/Sgt _____ detected an unidentified target about 30 mi. E of the Bentwaters GCA station, and tracked it in rapid westward motion to a point about 25 mi. W of the station, where the object "suddenly disappeared off the radar screen by rapidly moving out of the GCS radation pattern," according to his interpretation of the event. Here, again, we get discordant speed information, for T/Sgt _____ gave the speed only as being "in excess of 4000 mph," whereas the time-duration of the tracking, given as 16 sec, implies a speed of 12,000 mph, for the roughly 55 mi. track-length reported. Nothing in the Bluebook files indicates that this discrepancy was investigated further or even noticed, so one can say only that the apparent speed lay far above that of conventional aircraft.

D. *Other observations at Bentwaters*. A control tower sergeant, aware of the concurrent radar tracking, noted a light "the size of a pin-head at arm's length" at about 10 deg. elevation to the SSE. It remained there for about one hour, intermittently appearing and disappearing. Since Mars was in that part of the sky at that time, a reasonable interpretation is that the observer was looking at that planet.

A T-33 of the 512th Fighter Interceptor Squadron, returning to Bentwaters from a routine flight at about 2130Z, was vectored to the NE to search for the group of objects being tracked in that sector. Their search, unaided by airborne radar, led to no airborne sighting of any aircraft or other objects in that area, and after about 45 minutes they terminated search, having seen only a bright star in the east and a coastal beacon as anything worth noting. The Bluebook case-file contains 1956 USAF discussions of the case that make a big point of the inconclusiveness of the tower operator's sighting and the negative results of the T-33 search, but say nothing about the much more puzzling radar-tracking incidents than to stress that they were of "divergent" directions, intimating that this somehow put them in the category of anomalous propagation, which scarcely follows. Indeed, none of the three cited radar sightings exhibits any features typical of AP echoes. The winds over the Bentwaters area are given in the file. They jump from the surface level (winds from 230 deg. at 5-10 kts) to the 6000 ft level (260 deg., 30 kts), and then hold at a steady 260 deg. up to 50,000 ft, with speeds rising to a maximum of 90 kts near 30,000 ft. Even if one sought to invoke the highly dubious Borden-Vickers hypothesis (moving waves on an inversion surface), not even the slowest of the tracked echoes (80–125 mph) could be accounted for, nor is it even clear that the direction would be explainable. Furthermore, the strength of the individual echoes (stated as comparable to normal aircraft returns), the merging of the 15 or so into a single echo, the two intervals of stationarity, and final motion off-scope at a direction about 45 deg. from the initial motion, are all wholly unexplainable in terms of AP in these 2130–2155Z incidents. The extremely high-speed westward motion of single targets is even further from any known radar-anomaly

associated with disturbed propagation conditions. Blips that move across scopes from one sector to the opposite, in steady heading at steady apparent speed, correspond neither to AP nor to internal electronic disturbances. Nor could interference phenomena fit such observed echo behavior. Thus, this 30-minute period, 213O–2200Z, embraced three distinct events for which no satisfactory explanation exists. That these three events are omitted from the discussions in the Condon Report is unfortunate, for they serve to underscore the scientific significance of subsequent events at both Bentwaters and Lakenheath stations.

Comments on Reporting of Events After 2255Z, 8/13/56

The events summarized above were communicated to Bluebook by Capt. Edward L. Holt of the 81st Fighter-Bomber Wing stationed at Bentwaters, as Report No. IR-1-56, dated 31 August, 1956. All events occurring subsequent to 2200Z, on the other hand, were communicated to Project Bluebook via an earlier, lengthy teletype transmission from the Lakenheath USAF unit, sent out in the standard format of the report-form specified by regulation AFR200-2. Two teletype transmissions, dated 8/17/56 and 8/21/56, identical in basic content, were sent from Lakenheath to Bluebook. The Condon Report presents the content of that teletype report on pp. 252–254, in full, except for deletion of all names and localities and omission of one important item to be noted later here. However, most readers will be entirely lost because what is presented actually constitutes a set of answers to questions that are not stated! The Condon Report does not offer the reader the hint that the version of AFR200-2 appearing in the Report's Appendix, pp. 819–826 (there identified by its current designation, AFR80-17) would provide the reader with the standardized questions needed to translate much of the otherwise extremely confusing array of answers on pp. 252–254. For that reason, plus others, many readers will almost certainly be greatly (and entirely unnecessarily) confused on reading this important part of the Lakenheath report in the Condon Report.

That confusion, unfortunately, does not wholly disappear upon laboriously matching questions with answers, for it has long been one of the salient deficiencies of the USAF program of UFO report collection that the format of AFR200-2 (or its sequel AFR80-17) is usually only barely adequate and (especially for complex episodes such as that involved here) often entirely incapable of affording the reporting office enough scope to set out clearly and in proper chronological order all of the events that may be of potential scientific significance. Anyone who has studied many Bluebook reports in the AFR200-2 format, dating back to 1953, will be uncomfortably aware of this gross difficulty. Failure to carry out even modest follow-up investigations and incorporate findings thereof into Bluebook case-files leaves most intriguing Bluebook UFO cases full of unsatisfactorily answered questions. But those deficiencies do not, in my opinion, prevent the careful reader from discerning that very large numbers of those UFO cases carry highly significant scientific implications, implications of an intriguing problem going largely unexamined in past years.

Initial Alerting of Lakenheath GCA and RTCC

The official files give no indication of any further UFO radar sightings by Bentwaters GCA from 2200 until 2255Z. But, at the latter time, another fast-moving target was picked up 30 mi. E of Bentwaters, heading almost due west at a speed given as "2000–4000 mph". It passed almost directly over Bentwaters, disappearing from their GCA scope for the usual beam-angle reasons when within 2–3 miles (the Condon Report intimates that this close in disappearance is diagnostic of AP, which seems to be some sort of tacit over-acceptance of the 1952 Borden-Vickers hypothesis), and then moving on until it disappeared from the scope 30 mi. W of Bentwaters.

Very significantly, this radar-tracking of the passage of the unidentified target was matched by concurrent visual observations, by personnel on the ground looking up and also from an overhead aircraft looking down. Both visual reports involved only a light, a light described as blurred out by its high speed; but since the aircraft (identified as a C-47 by the Lakenheath non-com whose letter called this case to the attention of the Colorado Project) was flying only at 4000 ft, the altitude of the unknown object is bracketed within rather narrow bounds. (No mention of any sonic boom appears; but the total number of seemingly quite credible reports of UFOs moving at speeds far above sonic values and yet not emitting booms is so large that one must count this as just one more instance of many

currently inexplicable phenomena associated with the UFO problem.) The reported speed is not fast enough for a meteor, nor does the low-altitude flat traJectory and absence of a concussive shock wave match any meteoric hypothesis. That there was visual confirmation from observation points both above and below this fast-moving radar-tracked object must be viewed as adding still further credence to, and scientific interest in, the prior three Bentwaters radar sightings of the previous hour.

Apparently immediately after the 2255Z events, Bentwaters GCA alerted GCA Lakenheath, which lay off to its WNW. The answers to Questions 2(A) and 2(B) of the AFR200-2 format (on p. 253 of the Condon Report) seem to imply that Lakenheath ground observers were alerted in time to see a luminous object come in, at an estimated altitude of 2000–2500 ft, and on a heading towards SW. The lower estimated altitude and the altered heading do not match the Bentwaters sighting, and the ambiguity so inherent in the AFR200-2 format simply cannot be eliminated here, so the precise timing is not certain. All that seems certain here is that, at or subsequent to the Bentwaters alert-message, Lakenheath ground observers saw a luminous object come in out of the NE at low altitude, then *stop*, and take up an easterly heading and resume motion eastward out of sight.

The precise time-sequence of the subsequent observations is not clearly deducible from the Lakenheath TWX sent in compliance with AFR200-2. But that many very interesting events, scientifically very baffling events, soon took place is clear from the report. No follow-up, from Bluebook or other USAF sources, was undertaken, and so this potentially very important case, like hundreds of others, simply sent into the Bluebook files unclarified. I am forced to stress that nothing reveals so clearly the past years of scientifically inadequate UFO investigation as a few days' visit to Wright-Patterson AFB and a diligent reading of Bluebook case reports. No one with any genuine scientific interest in solving the UFO problem would have let accumulate so many years of reports like this one without seeing to it that the UFO reporting and follow-up investigations were brought into entirely different status from that in which they have lain for over 20 years.

Deficiencies having been noted, I next catalog, without benefit of the exact time-ordering that is so crucial to full assessment of any UFO event, the intriguing observations and events at or near Lakenheath subsequent to the 2255Z alert from Bentwaters.

Non-chronological Summary of Lakenheath Sightings, 2255Z-0330Z

A. *Visual observations from ground*. As noted two paragraphs above, following the 2255Z alert from GCA Bentwaters, USAF ground observers at the Lakenheath RAF Station observed a luminous object come in on a southwesterly heading, stop, and then move off out of sight to the east. Subsequently, at an unspecified time, two moving white lights were seen, and "ground observers stated one white light joined up with another and both disappeared in formation together" (recall earlier radar observations of merging of targets seen by Bentwaters GCA). No discernible features of these luminous sources were noted by ground observers, but both the observers and radar operators concurred in their report-description that "the objects (were) traveling at terrific speeds and then stopping and changing course immediately." In a passage of the original Bluebook report which was for some reason not included in the version presented in the Condon Report, this concordance of radar and visual observations is underscored: "Thus two radar sets (i.e., Lakenheath GCA and RATCC radars) and three ground observers report substantially same." Later in the original Lakenheath report, this same concordance is reiterated: "the fact that radar and ground visual observations were made on its rapid acceleration and abrupt stops certainly lend credulance (sic) to the report."

Since the date of this incident coincides with the date of peak frequency of the Perseid meteors, one might ask whether any part of the visual observations could have been due to Perseids. The basic Lakenheath report to Bluebook notes that the ground observers reported "unusual amount of shooting stars in sky," indicating that the erratically moving light(s) were readily distinguishable from meteors. The report further remarks thereon that "the objects seen were definitely not shooting stars as there were no trails as are usual with such sightings." Furthermore, the stopping and course reversals are incompatible with any such hypothesis in the first place.

AFR200-2 stipulates that observer be asked to compare the UFO to the size of various familiar objects when held at arm's length (Item 1-B in the format). In answer to that item, the report states: "One observer from ground stated on first observation object was about size of golf ball. As object continued in flight it became a 'pin point'." Even allowing for the usual inaccuracies in such estimates, this further rules out Perseids, since that shower yields only meteors of quite low luminosity.

In summary of the ground-visual observations, it appears that three ground observers at Lakenheath saw at least two luminous objects, saw these over an extended though indefinite time period, saw them execute sharp course changes, saw them remain motionless at least once, saw two objects merge into a single luminous object at one juncture, and reported motions in general accord with concurrent radar observations. These ground-visual observations, in themselves, constitute scientifically interesting UFO report-material. Neither astronomical nor aeronautical explanations, nor any meteorological-optical explanations, match well those reported phenomena. One could certainly wish for a far more complete and time-fixed report on these visual observations, but even the above information suffices to suggest some unusual events. The unusualness will be seen to be even greater on next examining the ground-radar observations from Lakenheath. And even stronger interest emerges as we then turn, last of all, to the airborne-visual and airborne-radar observations made near Lakenheath.

B. ***Ground-radar observations at Lakenheath.*** The GCA surveillance radar at Lakenheath is identified as a CPN–4, while the RATCC search radar was a CPS-5 (as the non-com correctly recalled in his letter). Because the report makes clear that these two sets were concurrently following the unknown targets, it is relevant to note that they have different wavelengths, pulse repetition frequencies, and scan-rates, which (for reasons that need not be elaborated here) tends to rule out several radar-anomaly hypotheses (e.g., interference echoes from a distant radar, second-time-around effects, AP). However, the reported maneuvers are so unlike any of those spurious effects that it seems almost unnecessary to confront those possibilities here.

As with the ground-visual observations, so also with these radar-report items, the AFR200-2 format limitations plus the other typical deficiencies of reporting of UFO events preclude reconstruction in detail, and in time-order, of all the relevant events. I get the impression that the first object seen visually by ground observers was not radar-tracked, although this is unclear from the report to Bluebook. One target whose motions were jointly followed both on the CPS-5 at the Radar Air Traffic Control Center and on the shorter-range, faster-scanning CPN-4 at the Lakenheath GCA unit was tracked "from 6 miles west to about 20 miles SW where target stopped and assumed a stationary position for five minutes. Target then assumed a heading northwesterly (I presume this was intended to read 'northeasterly,' and the non-com so indicates in his recollective account of what appears to be the same maneuvers) into the Station and stopped two miles NW of Station. Lakenheath GCA reports three to four additional targets were doing the same maneuvers in the vicinity of the Station. Thus two radar sets and three ground observers report substantially same." (Note that the quoted item includes the full passage omitted from the Condon Report version, and note that it seems to imply that this devious path with two periods of stationary hovering was also reported by the visual observers. However, the latter is not entirely certain because of ambiguities in the structure of the basic report as forced into the AFR200-2 format).

At some time, which context seems to imply as rather later in the night (the radar sightings went on until about 0330Z), "Lakenheath Radar Air Traffic Control Center observed object 17 miles east of Station making sharp rectangular course of flight. This maneuver was not conducted by circular path but on right angles at speeds of 600–800 mph. Object would stop and start with amazing rapidity." The report remarks that "...the controllers are experienced and technical skills were used in attempts to determine just what the objects were. When the target would stop on the scope, the MTI was used. However, the target would still appear on the scope." (The latter is puzzling. MTI, Moving Target Indication, is a standard feature on search or surveillance radars that eliminates ground returns and returns from large buildings and other motionless objects.

This very curious feature of display of stationary modes while the MTI was on adds further strong argument to the negation of any hypothesis of anomalous propagation of ground-returns. It was as if the unidentified target, while seeming to hover motionless, was actually undergoing small-amplitude but high-speed jittering motion to

yield a scope-displayed return despite the MTI. Since just such jittery motion has been reported in visual UFO sightings on many occasions, and since the coarse resolution of a PPI display would not permit radar-detection of such motion if its amplitude were below, say, one or two hundred meters, this could conceivably account for the persistence of the displayed return during the episodes of "stationary" hovering, despite use of MTI.)

The portion of the radar sightings just described seems to have been vividly recollected by the retired USAF non-com who first called this case to the attention of the Colorado group. Sometime after the initial Bentwaters alert, he had his men at the RATCC scanning all available scopes, various scopes set at various ranges. He wrote that "...one controller noticed a stationary target on the scopes about 20 to 25 miles southwest. This was unusual, as a stationary target should have been eliminated unless it was moving at a speed of at least 40 to 45 knots. And yet we could detect no movement at all. We watched this target on all the different scopes for several minutes and I called the GCA Unit at (Lakenheath) to see if they had this target on their scope in the same geographical location. As we watched, the stationary target started moving at a speed of 400 to 600 mph in a north- northeast direction until it reached a point about 20 miles north northwest of (Lakenheath). There was no slow start or build-up to this speed — it was constant from the second it started to move until it stopped." (This description, written 11 years after the event, matches the 1956 intelligence report from the Lakenheath USAF unit so well, even seeming to avoid the typographical direction-error that the Lakenheath TWX contained, that one can only assume that he was deeply impressed by this whole incident. That, of course, is further indicated by the very fact that he wrote the Colorado group about it in the first place.) His letter (Condon Report, p. 249) adds that "the target made several changes in location, always in a straight line, always at about 600 mph and always from a standing or stationary point to his next stop at constant speed—no build-up in speed at all—these changes in location varied from 8 miles to 20 miles in length—no set pattern at any time. Time spent stationary between movements also varied from 3 or 4 minutes to 5 or 6 minutes..." Because his account jibes so well with the basic Bluebook file report in the several particulars in which it can be checked, the foregoing quotation from the letter as reproduced in the Condon Report stands as meaningful indication of the highly unconventional behavior of the unknown aerial target. Even allowing for some recollective uncertainties, the non-com's description of the behavior of the unidentified radar target lies so far beyond any meteorological, astronomical, or electronic explanation as to stand as one challenge to any suggestions that UFO reports are of negligible scientific interest.

The non-com's account indicates that they plotted the discontinuous stop-and-go movements of the target for some tens of minutes before it was decided to scramble RAF interceptors to investigate. That third major aspect of the Lakenheath events must now be considered. (The delay in scrambling interceptors is noteworthy in many Air Force-related UFO incidents of the past 20 years. I believe this reluctance stems from unwillingness to take action lest the decision-maker be accused of taking seriously a phenomenon which the Air Force officially treats as non-existent.)

C. *Airborne radar and visual sightings by Venom interceptor.* An RAF jet interceptor, a Venom single-seat subsonic aircraft equipped with an air-intercept (AI) nose radar, was scrambled, according to the basic Bluebook report, from Waterbeach RAF Station, which is located about 6 miles north of Cambridge, and some 20 miles SW of Lakenheath. Precise time of the scramble does not appear in the report to Bluebook, but if we were to try to infer the time from the non-com's recollective account, it would seem to have been somewhere near midnight. Both the non-com's letter and the contemporary intelligence report make clear that Lakenheath radar had one of their unidentified targets on-scope as the Venom came in over the Station from Waterbeach. The TWX to Blue book states: "The aircraft flew over RAF Station Lakenheath and was vectored toward a target on radar 6 miles east of the field. Pilot advised he had a bright white light in sight and would investigate. At thirteen miles west (east?) he reported loss of target and white light."

It deserves emphasis that the foregoing quote clearly indicates that the UFO that the Venom first tried to intercept was being monitored via three distinct physical "sensing channels." It was being recorded by *ground radar*, by *airborne radar*, and *visually*. Many scientists are entirely unaware that Air Force files contain such UFO cases; for this very interesting category has never been stressed in USAF discussions of its UFO records. Note, in

fact, the similarity to the 1957 RB-47 case (Case 1 above) in the evidently simultaneous loss of visual and airborne-radar signal here. One wonders if ground radar also lost it simultaneously with the Venom pilot's losing it, but, loss of visual and airborne-radar signal here. One wonders if ground radar also lost it simultaneously with the Venom pilot's losing it, but, as is so typical of AFR200-2 reports, incomplete reporting precludes clarification. Nothing in the Bluebook case-file on this incident suggests that anyone at Bluebook took any trouble to run down that point or the many other residual questions that are so painfully evident here. The file does, however, include a lengthy dispatch from the then-current Blue book officer, Capt. G. T. Gregory, a dispatch that proposes a series of what I must term wholly irrelevant hypotheses about Perseid meteors with "ionized gases in their wake which may be traced on radarscopes," and inversions that "may cause interference between two radar stations some distance apart." Such basically irrelevant remarks are all too typical of Bluebook critique over the years. The file also includes a case-discussion by Dr. J. A. Hynek, Bluebook consultant, who also toys with the idea of possible radar returns from meteor wake ionization. Not only are the radar frequencies here about two orders of magnitude too high to afford even marginal likelihood of meteor-wake returns, but there is absolutely no kinematic similarity between the reported UFO movements and the essentially straight-line hypersonic movement of a meteor, to cite just a few of the strong objections to any serious consideration of meteor hypotheses for the present UFO case. Hynek's memorandum on the case makes some suggestions about the need for upgrading Bluebook operations, and then closes with the remarks that "The Lakenheath report could constitute a source of embarrassment to the Air Force; and should the facts, as so far reported, get into the public domain, it is not necessary to point out what excellent use the several dozen UFO societies and other 'publicity artists' would make of such an incident. It is, therefore, of great importance that further information on the technical aspects of the original observations be obtained, without loss of time from the original observers." That memo of October 17, 1956, is followed in the case-file by Capt. Gregory's November 26, 1956 reply, in which he concludes that "our original analyses of anomalous propagation and astronimical is (sic) more or less correct"; and there the case investigation seemed to end, at the same casually closed level at which hundreds of past UFO cases have been closed out at Bluebook with essentially no real scientific critique. I would say that it is exceedingly unfortunate that "the facts, as so far reported" did not get into the public domain, along with the facts on innumerable other Bluebook case-files that should have long ago startled the scientific community just as much as they startled me when I took the trouble to go to Bluebook and spend a number of days studying those astonishing files.

Returning to the scientifically fascinating account of the Venom pilot's attempt to make an air-intercept on the Lakenheath unidentified object, the original report goes on to note that, after the pilot lost both visual and radar signals, "RATCC vectored him to a target 10 miles east of Lakenheath and pilot advised target was on radar and he was 'locking on.'" Although here we are given no information on the important point of whether he also saw a luminous object, as he got a radar lock-on, we definitely have another instance of at least two-channel detection. The concurrent detection of a single radar target by a ground radar and an airborne radar under conditions such as these, where the target proves to be a highly maneuverable object (see below), categorically rules out any conventional explanations involving, say, large ground structures and propagation anomalies. That MTI was being used on the ground radar also excludes that, of course.

The next thing that happened was that the Venom suddenly lost radar lock-on as it neared the unknown target. RATCC reported that "as the Venom passed the target on radar, the target began a tail chase of the friendly fighter." RATCC asked the Venom pilot to acknowledge this turn of events and he did, saying "he would try to circle and get behind the target." His attempts were unsuccessful, which the report to Bluebook describes only in the terse comment, "Pilot advised he was unable to 'shake' the target off his tail and requested assistance." The non-com's letter is more detailed and much more emphatic. He first remarks that the UFO's sudden evasive movement into tail position was so swift that he missed it on his own scope, "but it was seen by the other controllers." His letter then goes on to note that the Venom pilot "tried everything — he climbed, dived, circled, etc., but the UFO acted like it was glued right behind him, always the same distance, very close, but we always had two distinct targets." Here again, note how the basic report is annoyingly incomplete. One is not told whether the pilot knew the UFO was pursuing his Venom by virtue of some tail-radar warning device of type often used on fighters (none is alluded to),

or because he could see a luminous object in pursuit. In order for him to "acknowledge" the chase seems to require one or the other detection-mode, yet the report fails to clarify this important point. However, the available information does make quite clear that the pursuit was being observed on ground radar, and the non-com's recollection puts the duration of the pursuit at perhaps 10 minutes before the pilot elected to return to his base. Very significantly, the intelligence report from Lakenheath to Bluebook quotes this first pilot as saying "clearest target I have ever seen on radar," which again eliminates a number of hypotheses, and argues most cogently the scientific significance of the whole episode.

The non-com recalled that, as the first Venom returned to Waterbeach Aerodrome when fuel ran low, the UFO followed him a short distance and then stopped; that important detail is, however, not in the Bluebook report. A second Venom was then scrambled, but, in the short time before a malfunction forced it to return to Waterbeach, no intercepts were accomplished by that second pilot.

Discussion

The Bluebook report material indicates that other radar unknowns were being observed at Lakenheath until about 0330Z. Since the first radar unknowns appeared near Bentwaters at about 2130Z on 8/13/56, while the Lakenheath events terminated near 0330Z on 8/14/56, the total duration of this UFO episode was about six hours. The case includes an impressive number of scientifically provocative features:

1. At least three separate instances occurred in which one ground-radar unit, GCA Bentwaters, tracked some unidentified target for a number of tens of miles across its scope at speeds in excess of Mach 3. Since even today, 12 years later, no nation has disclosed military aircraft capable of flight at such speeds (we may exclude the X-15), and since that speed is much too low to fit any meteoric hypothesis, this first feature (entirely omitted from discussion in the Condon Report) is quite puzzling. However, Air Force UFO files and other sources contain many such instances of nearly hypersonic speeds of radar-tracked UFOs.

2. In one instance, about a dozen low-speed (order of 100 mph) targets moved in loose formation led by three closely-spaced targets, the assemblage yielding consistent returns over a path of about 50 miles, after which they merged into a single large target, remained motionless for some 10–15 minutes, and then moved off-scope. Under the reported wind conditions, not even a highly contrived meteorological explanation invoking anomalous propagation and inversion layer waves would account for this sequence observed at Bentwaters. The Condon Report omits all discussion of items 1) and 2), for reasons that I find difficult to understand.

3. One of the fast-track radar sightings at Bentwaters, at 2255Z, coincided with visual observations of some very-high-speed luminous source seen by both a tower operator on the ground and by a pilot aloft who saw the light moving in a blur below his aircraft at 4000 ft altitude. The radar-derived speed "as given as 2000–4000 mph. Again, meteors won't fit such speeds and altitudes, and we may exclude aircraft for several evident reasons, including absence of any thundering sonic boom that would surely have been reported if any near hypothetical secret 1956-vintage hypersonic device were flying over Bentwaters at less than 4000 ft that night.

4. Several ground observers at Lakenheath saw luminous objects exhibiting non-ballistic motions, including dead stops and sharp course reversals.

5. In one instance, two luminous white objects merged into a single object, as seen from the ground at Lakenheath. This wholly unmeteoric and unaeronautical phenomenon is actually a not-uncommon feature of UFO reports during the last two decades. For example, radar-tracked merging of two targets that veered together sharply before joining up was reported over Kincheloe AFB, Michigan, in a UFO

report that also appears in the Condon Report (p. 164), quite unreasonably attributed therein to "anomalous propagation."

6. Two separate ground radars at Lakenheath, having rather different radar parameters, were concurrently observing movements of one or more unknown targets over an extended period of time. Seemingly stationary hovering modes were repeatedly observed, and this despite use of MTI. Seemingly "instantaneous" accelerations from rest to speeds of order of Mach 1 were repeatedly observed. Such motions cannot readily be explained in terms of any known aircraft flying then or now, and also fail to fit known electronic or propagation anomalies. The Bluebook report gives the impression (somewhat ambiguously, however) that some of these two-radar observations were coincident with ground-visual observations.

7. In at least one instance, the Bluebook report makes clear that an unidentified luminous target was seen visually from the air by the pilot of an interceptor while getting simultaneous radar returns from the unknown with his nose radar concurrent with ground-radar detection of the same unknown. This is scientifically highly significant, for it entails three separate detection-channels all recording the unknown object.

8. In at least one instance, there was simultaneous radar disappearance and visual disappearance of the UFO. This is akin to similar events in other known UFO cases, yet is not easily explained in terms of conventional phenomena.

9. Attempts of the interceptor to close on one target seen both on ground radar and on the interceptor's nose radar, led to a puzzling rapid interchange of roles as the unknown object moved into tail-position behind the interceptor. While under continuing radar observation from the ground, with both aircraft and unidentified object clearly displayed on the Lakenheath ground radars, the pilot of the interceptor tried unsuccessfully to break the tail chase over a time of some minutes. No ghost-return or multiple-scatter hypothesis can explain such an event.

I believe that the cited sequence of extremely baffling events, involving so many observers and so many distinct observing channels, and exhibiting such unconventional features, should have led to the most intensive Air Force inquiries. But I would have to say precisely the same about dozens of other inexplicable Air Force-related UFO incidents reported to Bluebook since 1947. What the above illustrative case shows all too well is that highly unusual events have been occurring under circumstances where any organization with even passing scientific curiosity should have responded vigorously, yet the Air Force UFO program has repeatedly exhibited just as little response as I have noted in the above 1956 Lakenheath incident. The Air Force UFO program, contrary to the impression held by most scientists here and abroad, has been an exceedingly superficial and generally quite incompetent program. Repeated suggestions from Air Force press offices, to the effect that "the best scientific talents available to the U.S. Air Force" have been brought to bear on the UFO question are so far from the truth as to be almost laughable, yet those suggestions have served to mislead the scientific community, here and abroad, into thinking that careful investigations were yielding solid conclusions to the effect that the UFO problem was a nonsense problem. The Air Force has given us all the impression that its UFO reports involved only misidentified phenomena of conventional sorts. That, I submit, is far from correct, and the Air Force has not responsibly discharged its obligations to the public in conveying so gross a misimpression for twenty years. I charge incompetence, not conspiracy, let me stress.

The Condon Report, although disposed to suspicion that perhaps some sort of anomalous radar propagation might be involved (I record here my objection that the Condon Report exhibits repeated instances of misunderstanding of the limits of anomalous propagation effects), does concede that Lakenheath is an unexplained case. Indeed, the report ends its discussion with the quite curious admission that, in the Lakenheath episode, "...the probability that at least one genuine UFO was involved appears to be fairly high."

One could easily become enmeshed in a semantic dispute over the meaning of the phrase, "one genuine UFO," so I shall simply assert that my own position is that the Lakenheath case exemplifies a disturbingly large group of

UFO reports in which the apparent degree of scientific inexplicability is so great that, instead of being ignored and laughed at, those cases should all along since 1947 have been drawing the attention of a large body of the world's best scientists. Had the latter occurred, we might now have some answers, some clues to the real nature of the UFO phenomena. But 22 years of inadequate UFO investigations have kept this stunning scientific problem out of sight and under a very broad rug called Project Bluebook, whose final termination on December 18, 1969 ought to mark the end of an era and the start of a new one relative to the UFO problem.

More specifically, with cases like Lakenheath and the 1957 RB-47 case and many others equally puzzling that are to be found within the Condon Report, I contest Condon's principal conclusion "that further extensive study of UFOs probably cannot be justified in the expectation that science will be advanced thereby." And I contest the endorsement of such a conclusion by a panel of the National Academy of Sciences, an endorsement that appears to be based upon essentially *zero* independent scientific cross-checking of case material in the report. Finally, I question the judgment of those Air Force scientific offices and agencies that have accepted so weak a report. The Lakenheath case is just one example of the basis upon which I rest those objections. I am prepared to discuss many more examples.

The Extraterrestrial Hypothesis

In this Lakenheath UFO episode, we have evidence of some phenomena defying ready explanation in terms of present-day science and technology, some phenomena that include enough suggestion of intelligent control (tail-chase incident here), or some broadly cybernetic equivalent thereof, that it is difficult for me to see any reasonable alternative to the hypothesis that something in the nature of extraterrestrial devices engaged-in something in the nature of surveillance lies at the heart of the UFO problem. That is the hypothesis that my own study of the UFO problem leads me to regard as most probable in terms of my present information. This is, like all scientific hypotheses, a working hypothesis to be accepted or rejected only on the basis of continuing investigation. Present evidence surely does not amount to incontrovertible proof of the extraterrestrial hypothesis. What I find scientifically dismaying is that, while a large body of UFO evidence now seems to point in no other direction than the extraterrestrial hypothesis, the profoundly important implications of that possibility are going unconsidered by the scientific community because this entire problem has been imputed to be little more than a nonsense matter unworthy of serious scientific attention. Those overtones have been generated almost entirely by scientists and others who have done essentially no real investigation of the problem-area in which they express such strong opinions. Science is not supposed to proceed in that manner, and this AAAS Symposium should see an end to such approaches to the UFO problem.

Put more briefly, doesn't a UFO case like Lakenheath warrant more than a mere shrug of the shoulders from science?

Case 3. Haneda Air Force Base, Japan, August 5–6, 1952

Brief summary: USAF tower operators at Haneda AFB observed an unusually bright bluish-white light to their NE, alerted the GCI radar unit at Shiroi, which then called for a scramble of an F94 interceptor after getting radar returns in same general area. GCI ground radar vectored the F94 to an orbiting unknown target, which the F94 picked up on its airborne radar. The target then accelerated out of the F94's radar range after 90 seconds of pursuit that was followed also on the Shiroi GCI radar.

Introduction

The visual and radar sightings at Haneda AFB, Japan, on August 5–6, 1952, represent an example of a long-puzzling case, still carried as an unidentified case by Project Bluebook, at my latest check, and chosen for analysis in the Condon Report. In the latter, is putatively explained in terms of a combination of diffraction and mirage

distortion of the star Capella, as far as the visual parts are concerned, while the radar portions are attributed to anomalous propagation. I find very serious difficulties with those "explanations" and regard them as typical of a number of rather casually advanced explanations of long-standing UFO cases that appear in the Condon Report. Because this case has been discussed in such books as those of Ruppelt, Keyhoe, and Hall, it is of particular interest to carefully examine case-details on it and then to examine the basis of the Condon Report's explanation of it, as example of how the Condon Report disposed of old "classic cases."

Haneda AFB, active during the Korean War, lay about midway between central Tokyo and central Yokohama, adjacent to Tokyo International Airport. The 1952 UFO incident began with visual sightings of a brilliant object in the northeastern sky, as seen by two control tower operators going on duty at 2330 LST (all times hereafter will be LST). It will serve brevity to introduce some coded name designations for these men and for several officers involved, since neither the Condon Report, nor my copies of the original Bluebook case-file show names (excised from latter copies in accordance with Bluebook practice on non-release of witness names in UFO cases):

Coded Designation	Identification
Airman A	One of two Haneda tower operators who first sighted light; rank was A/3c.
Airman B	Second Haneda tower operator to first sight light; A/1c.
Lt. A	Controller on duty at Shiroi GCI unit up to 2400, August 5; 1st Lt.
Lt. B	Controller at Shiroi after 0000, August 6; 1st Lt.
Lt. P	Pilot of scrambled F-94; 1st Lt.
Lt. R	Radar officer in F-94; 1st Lt.

Shiroi GCI Station, manned by the 528th AC & W (Aircraft Control and Warning) Group, lay approximately 20 miles NE of Haneda (specifically at 35 deg. 49' N, 140 deg. 2' E) and had a CPS-1 10-cm search radar plus a CPS 10-cm height-finding radar. Two other USAF facilities figure in the incident, Tachikawa AFB, lying just over 20 miles WNW of Haneda, and Johnson AFB, almost 30 miles NW of Waneda. The main radar incidents center over the north extremity of Tokyo Bay, roughly midway from central Tokyo to Chiba across the Bay.

The Bluebook case-file on this incident contains 25 pages, and since the incident predates promulgation of AFR200-2, the strictures on time-reporting, etc., are not here so bothersome as in the Lakenheath case of 1956, discussed above. Nevertheless, the same kind of disturbing internal inconsistencies are present here as one finds in most Bluebook case reports; in particular, there is a bothersome variation in times given for specific events in different portions of the case-file. One of these, stressed in the Condon Report, will be discussed explicitly below; but for the rest, I shall use those times which appear to yield the greatest over-all internal consistency. This will introduce no serious errors, since the uncertainties are mostly only 1 or 2 minutes and, except for the cited instance, do not alter any important implications regardless of which cited time is used. The overall duration of the visual and radar sightings is about 50 minutes. The items of main interest occurred between 2330 and 0020, approximately.

Although this case involves both visual and radar observations of unidentified objects, careful examination does not support the view that the same object was ever assuredly seen visually and on radar at the same time, with the possible exception of the very first radar detection just after 2330. Thus it is not a "radar-visual" case, in the more significant sense of concurrent two-channel observations of an unknown object. This point will be discussed further in Section 5.

Visual Observations

A. First visual detection. At 2330, Airmen A and B, while walking across the ramp at Haneda AFB to go on the midnight shift at the airfield control tower, noticed an "exceptionally bright light" in their northeastern sky. They went immediately to the control tower to alert two other on-duty controllers to it and to examine it more carefully with the aid of the 7x50 binoculars available in the tower. The Bluebook case-file notes that the two controllers

already on tower-duty "had not previously noticed it because the operating load had been keeping their attention elsewhere."

B. Independent visual detection at Tachikawa AFB. About ten minutes later, according to the August 12, 1952, Air Intelligence Information Report (IR-35-52) in the Bluebook case-file; Haneda was queried about an unusually bright light by controllers at Tachikawa AFB, 21 miles to their WNW. IR-35-52 states: "The control tower at Tachikawa Air Force Base called Haneda tower at approximately 2350 to bring their attention to a brilliant white light over Tokyo Bay. The tower replied that it had been in view for some time and that it was being checked."

This feature of the report is significant in two respects: 1) It indicates that the luminous source was of sufficiently unusual brilliance to cause two separate groups of Air Force controllers at two airfields to respond independently and to take alert-actions; and 2) More significantly, the fact that the Tachikawa controllers saw the source in a direction "over Tokyo Bay" implies a line-of-sight distinctly south of east. From Tachikawa, even the north end of the Bay lies to the ESE. Thus the intersection of the two lines of sight fell somewhere in the northern half of the Bay, it would appear. As will be seen later, this is where the most significant parts of the radar tracking occurred subsequently.

C. Direction, intensity, and configuration of the luminous source. IR-35-52 contains a signed statement by Air man A, a sketch of the way the luminous source looked through 7-power binoculars, and summary comments by Capt. Charles J. Malven, the FEAF intelligence officer preparing the report for transmission to Bluebook.

Airman A's own statement gives the bearing of the source as NNE; Malven summary specifies only NE. Presumably the witness' statement is the more reliable, and it also seems to be given a greater degree of precision, whence a line-of-sight azimuth somewhere in the range of 25 to 35 deg. east of north appears to be involved in the Haneda sightings. By contrast, the Tachikawa sighting-azimuth was in excess of 90 deg. from north, and probably beyond 100 deg., considering the geography involved, a point I shall return to later.

Several different items in the report indicate the high intensity of the source. Airman A's signed statement refers to it as "the intense bright light over the Bay." The annotated sketch speaks of "constant brilliance across the entire area" of the (extended) source, and remarks on "the blinding effect from the brilliant light." Malven's summary even points out that "Observers stated that their eyes would fatigue rapidly when they attempted to concentrate their vision on the object," and elsewhere speaks of "the brilliant blue-white light of the object." Most of these indications of brightness are omitted from the Condon Report, yet bear on the Capella hypothesis in terms of which that Report seeks to dispose of these visual sightings.

Airman A's filed statement includes the remark that "I know it wasn't a star, weather balloon or Venus, because I compared it with all three." This calls for two comments. First, Venus is referred to elsewhere in the case-file, but this is certainly a matter of confusion, inasmuch as Venus had set that night before about 2000 LST. Since elsewhere in the report reference is made to Venus lying in the East, and since the only noticeable celestial object in that sector at that time would have been Jupiter, I would infer that where "Venus" is cited in the case-file, one should read "Jupiter." Jupiter would have risen near 2300, almost due east, with apparent magnitude −2.0. Thus Airman A's assertion that the object was brighter than "Venus" may probably be taken to imply something of the order of magnitude −3.0 or brighter. Indeed, since it is most unlikely that any observer would speak of a −3.0 magnitude source as "blinding" or "fatiguing" to look at, I would suggest that the actual luminosity, at its periods of peak value (see below) must have exceeded even magnitude −3 by a substantial margin.

Airman A's allusion to the intensity as compared with a "weather balloon" refers to the comparisons (elaborated below) with the light suspended from a pilot balloon released near the tower at 2400 that night and observed by the tower controllers to scale the size and brightness. This is a very fortunate scaling comparison, because the small battery-operated lights long used in meteorological practice have a known luminosity of about 1.5 candle. Since a 1-candle source at 1 kilometer yields apparent magnitude 0.8, inverse-square scaling for the here known balloon distance of 2000 feet (see below) implies an apparent magnitude of about −0.5 for the balloon-light as viewed at time of launch. Capt. Malven's summary states, in discussing this quite helpful comparison, "The balloon's light was described as extremely dim and yellow, when compared to the brilliant blue white light of the object." Here

again, I believe one can safely infer an apparent luminosity of the object well beyond Jupiter's –2.0. Thus, we have here a number of compatible indications of apparent brightness well beyond that of any star, which will later be seen to contradict explanations proposed in the Condon Report for the visual portions of the Haneda sightings.

Of further interest relative to any stellar source hypothesis are the descriptions of the configuration of the object as seen with 7-power binoculars from the Haneda tower, and its approximate angular diameter. Fortunately, the latter seems to have been adjudged in direct comparison with an object of determinate angular subtense that was in view in the middle of the roughly 50-minute sighting. At 2400, a small weather balloon was released from a point at a known distance of 2000 ft from the control tower. Its diameter at release was approximately 24 inches. (IR-35-52 refers to it as a "ceiling balloon," but the cloud-cover data contained therein is such that no ceiling balloon would have been called for. Furthermore, the specified balloon mass, 30 grams, and diameter, 2 ft, are precisely those of a standard pilot balloon for upper-wind measurement. And finally, the time [2400 LST = 1500Z] was the standard time for a pilot balloon run, back in that period.) A balloon of 2-ft diameter at 2000-ft range would subtend 1 milliradian, or just over 3 minutes of arc, and this was used by the tower observers to scale the apparent angular subtense of the luminous source. As IR-35-52 puts it: "Three of the operators indicated the size of the light, when closest to the tower, was approximately the same as the small ceiling balloons (30 grams, appearing 24 inches in diameter) when launched from the weather station, located at about 2000 ft from the tower. This would make the size of the central light about 50 ft in diameter, when at the 10 miles distance tracked by GCI.... A lighted weather balloon was launched at 2400 hours..." Thus, it would appear that an apparent angular subtense close to 3 minutes of arc is a reasonably reliable estimate for the light as seen by naked eye from Haneda. This is almost twice the average resolution-limit of the human eye, quite large enough to match the reported impressions that it had discernible extent, i.e., was not merely a point source.

But the latter is very much more clearly spelled out, in any event, for IR-35-52 gives a fairly detailed description of the object's appearance through 7-power binoculars. It is to be noted that, if the naked-eye diameter were about 3 minutes, its apparent subtense when viewed through 7X-binoculars would be about 20 minutes, or two-thirds the naked-eye angular diameter of the full moon — quite large enough to permit recognition of the finer details cited in IR-35-52, as follows: "The light was described as circular in shape, with brilliance appearing to be constant across the face. The light appeared to be a portion of a large round dark shape which was about four times the diameter of the light. When the object was close enough for details to be seen, a smaller, less brilliant light could be seen at the lower left hand edge, with two or three more dim lights running in a curved line along the rest of the lower edge of the dark shape. Only the lower portion of the darker shape could be determined, due to the lighter sky which was believed to have blended with the upper side of the object. No rotation was noticed. No sound was heard."

Keeping in mind that those details are, in effect, described for an image corresponding in apparent angular size to over half a lunar diameter, the detail is by no means beyond the indiscernible limit. The sketch included with IR-35-52 matches the foregoing description, indicating a central disc of "constant brilliance across entire area (not due to a point source of light)," an annular dark area of overall diameter 3–4 times that of the central luminary, and having four distinct lights on the lower periphery, "light at lower left, small and fairly bright, other lights dimmer and possibly smaller." Finally, supportive comment thereon is contained in the signed statement of Airman A. He comments: "After we got in the tower I started looking at it with binoculars, which made the object much clearer. Around the bright white light in the middle, there was a darker object which stood out against the sky, having little white lights along the outer edge, and a glare around the whole thing."

All of these configurational details, like the indications of a quite un-starlike brilliance, will be seen below to be almost entirely unexplainable on the Capella hypothesis with which the Condon Report seeks to settle the Haneda visual sightings. Further questions ultimately arise from examination of reported apparent motions of the luminous source, which will be considered next.

D. Reported descriptions of apparent motions of the luminous source. Here we meet the single most important ambiguity in the Haneda case-file, though the weight of the evidence indicates that the luminous object exhibited definite movements. The ambiguity arises chiefly from the way Capt. Malven summarized the matter in his IR-35-52 report a week after the incident; "The object faded twice to the East, then returned. Observers were uncertain

whether disappearance was due to a dimming of the lights, rotation of object, or to the object moving away at terrific speed, since at times of fading the object was difficult to follow closely, except as a small light. Observers did agree that when close, the object did appear.

In contrast to the above form in which Malven summarized the reported motions, the way Airman A described them in his own statement seems to refer to distinct motions, including transverse components: "I watched it disappear twice through the glasses. It seemed to travel to the East and gaining altitude at a very fast speed, much faster than any jet. Every time it disappeared it returned again, except for the last time when the jets were around. It seemed to know they were there. As for an estimate of the size of the object — I couldn't even guess." Recalling that elsewhere in that same signed statement this tower controller had given the observed direction to the object as NNE, his specification that the object "seemed to travel to the East" seems quite clearly to imply a non radial motion, since, if only an impression of the latter were involved, one would presume he would have spoken of it in some such terms as "climbing out rapidly to the NNE." Since greater weight is presumably to be placed on direct-witness testimony than on another's summary thereof, it appears necessary to assume that not mere radial recession but also transverse components of recession. upwards and towards the East, were observed.

That the luminous source varied substantially in angular subtense is made very clear at several points in the case-file: One passage already cited discusses the "size of the light, when closest to the tower...," while, by contrast, another says that: "At the greatest distance, the size of the light appeared slightly larger than Venus, approximately due East of Haneda, and slightly brighter." (For "Venus" read "Jupiter" as noted above. Jupiter was then near quadrature with angular diameter of around 40 seconds of arc. Since the naked eye is a poor judge of comparative angular diameters that far below the resolution limit, little more can safely be read into that statement than the conclusion that the object's luminous disc diminished quite noticeably and its apparent brightness fell to a level comparable to or a bit greater than Jupiter's when at greatest perceived distance. By virtue of the latter, it should be noted, one has another basis for concluding that when at peak brilliance it must have been considerably brighter than Jupiter's –2.0, a conclusion already reached by other arguments above.

In addition to exhibiting what seems to imply recession, eastward motion, and climb to disappearance, the source also disappeared for at least one other period far too long to be attributed to any scintillation or other such meteorological optical effect: "When we were about half way across the ramp (Airman A stated), it disappeared for the first time and returned to approximately the same spot about 15 seconds later." There were scattered clouds over Haneda at around 15–16,000 ft, and a very few isolated clouds lower down, yet it was full moon that night and, if patches of clouds had drifted very near the controllers' line-of-sight to the object, they could be expected to have seen the clouds. (The upper deck was evidently thin, for Capt. Malven notes in his report that "The F94 crew reported exceptional visibility and stated that the upper cloud layer did not appreciably affect the brilliancy of the moonlight.") A thin cloud interposed between observer and a distant luminous source would yield an impression of dimming and enhanced effective angular diameter, not dimming and reduced apparent size, as reported here. I believe the described "disappearances" cannot, in view of these several considerations, reasonably be attributed to cloud effects.

I have now summarized the essential features of the Haneda report dealing with just the visual observations of some bright luminous source that initiated the alert and that led to the ground-radar and air borne-radar observations yet to be described. Before turning to those, which comprise, in fact, the more significant portion of the over-all sighting, it will be best to turn next to a critique of the Blue book and the Condon Report attempts to give an explanation of the visual portions of the sighting.

Bluebook Critique of the Visual Sightings

In IR-35-52. Capt, Malven offers only one hypothesis, and that in only passing manner: He speculates briefly on whether "reflections off the water (of the Bay, I presume) were...sufficient to form secondary reflections off the lower clouds," and by the latter he refers to "isolated patches of thin clouds reported by the F-94 crew as being at approximately 4000 feet..." He adds that "these clouds were not reported to be visible by the control tower

personnel," which, in view of the 60-mile visibility cited elsewhere in the case-file and in view of the full moon then near the local meridian, suggests that those lower clouds must have been exceedingly widely scattered to escape detection by the controllers.

What Malven seems to offer there, as an hypothesis for the observed visual source, is cloud-reflection of moonlight — and in manner all too typical of many other curious physical explanations one finds scattered through Bluebook case-files, he brings in a consideration that reveals lack of appreciation of what is central to the issue. If he wants to talk about cloud-reflected moonlight, why render a poor argument even weaker by invoking not direct moonlight but moonlight secondarily reflected off the surface of Tokyo Bay? Without even considering further that odd twist in his tentative hypothesis, it is sufficient to note that even direct moonlight striking a patch of cloud is not "reflected" in any ordinary sense of that term. It is scattered from the cloud droplets and thereby serves not to create any image of a discrete light source of blinding intensity that fatigues observers' eyes and does the other things reported by the Haneda observers, but rather serves merely to palely illuminate a passing patch of cloud material. A very poor hypothesis.

Malven drops that hypothesis without putting any real stress on it (with judgment that is not always found where equally absurd "explanations" have been advanced in innumerable other Bluebook case-files by reporting officers or by Bluebook staff members). He does add that there was some thunderstorm activity reported that night off to the northwest of Tokyo, but mentions that there was no reported electrical activity therein. Since the direction is opposite to the line of sight and since the reported visual phenomena bear no relation to lightning effects, this carried the matter no further, and the report drops that point there.

Finally, Malven mentions very casually an idea that I have encountered repeatedly in Bluebook files yet nowhere else in my studies of atmospheric physics, namely, "reflections off ionized portions of the atmosphere." He states: "Although many sightings might be attributed to visual and electrical reflections off ionized areas in the atmosphere, the near-perfect visibility on the night of the sighting, together with the circular orbit of the object would tend to disprove this theory." Evidently he rejects the "ionized areas" hypothesis on the ground that presence of such areas is probably ruled out in view of the unusually good visibility reported that night. I trust that, for most readers of this discussion, I would only be belaboring the obvious to remark that Bluebook mythology about radar and visual "reflections" off "ionized regions" in the clear atmosphere (which mythology I have recently managed to trace back even to pre-1950 Air Force documents on UFO reports) has no known basis in fact, but is just one more of the all too numerous measures of how little scientific critique the Air Force has managed to bring to bear on its UFO problems over the years.

Although the final Bluebook evaluation of this entire case, including the visual portions, was and is "Unidentified," indicating that none of the above was regarded as an adequate explanation of even the visual features of the report, one cannot overlook extremely serious deficiencies in the basic reporting and the interrogation and follow-up here. This incident occurred in that period which my own studies lead me to describe as sort of a highwater mark for Project Bluebook. Capt. Edward J. Ruppelt was then Bluebook Officer at Wright-Patterson AFB, and both he and his superiors were then taking the UFO problem more seriously than it was taken by USAF at any other time in the past 22 years. Neither before nor after 1952–3 were there as many efforts made to assemble case-information, to go out and actually check in the field on sightings, etc. Yet it should be uncomfortably apparent already at this point in this discussion of the Haneda case that quite basic points were not run to ground and pinned down. Ruppelt, in his 1956 book, speaks of this Haneda case as if it were regarded as one of the most completely reported cases they'd received as of mid-1952. He mentioned that his office sent a query to FEAF offices about a few points of confusion, and that the replies came back with impressive promptness, etc. If one needed some specific clue to the regrettably low scientific level of the operation of Bluebook even during this period of comparatively energetic case-investigation, one can find it in study of the Haneda report. Even so simple a matter as checking whether Venus was actually in the East was obviously left undone; and numerous cross-questions and followup queries on motions, angles, times, etc., not even thought of. That, I stress, is what any scientist who studies the Bluebook files as I have done will find all through 22 years of Air Force handling of the UFO problem. Incompetence and superficiality — even at the 1952 highwater mark under Ruppelt's relatively vigorous [missing].

And in the final paragraph discussing this case, the Condon Report merely rounds it off to: "In summary, it appears that the most probable causes of this UFO report are an optical effect on a bright light source that produced the visual sighting..." (and goes on to a remark on the radar portions we have yet to examine here) .

There are some very serious difficulties with the more specific parts of the suggested explanation, and the vagueness of the other parts is sufficiently self-evident to need little comment.

First, nothing in the literature of meteorological optics discusses any diffraction-produced coronae with a dark annular space extending out to three or four diameters of the central luminary, such as is postulated in the above Condon Report explanation. The radial intensity pattern of a corona may be roughly described as a damped oscillatory radial variation of luminosity, with zero intensity minima (for the simple case of a monochromatic luminary) at roughly equal intervals, and no broad light-free annulus comparable to that described in detail by the Haneda controllers. Thus, lack of understanding of the nature of coronae is revealed at the outset in attempting to fit the Haneda observations to such a phenomenon.

Second, droplets certainly do not have to be "spaced at regular intervals" to yield a corona, and Minnaert's book makes no such suggestion, another measure of misunderstanding of the meteorological optics here concerned. Nor is there any physical mechanism operating in clouds capable of yielding any such regular droplet spacing. Both Minnaert and cloud physics are misunderstood in that passage.

Third, one quickly finds, by some trial calculations, using the familiar optical relation (Exner equation) for the radial positions of the minima of the classical corona pattern, that the cited drop diameter of 0.2 mm = 200 microns was obtained in the Condon Report by back-calculating from a tacit requirement that the first-order minimum lay close to 3 milliradians, for these are the values that satisfy the Exner equation for an assumed wavelength of about 0.5 microns for visible light. This discloses even more thorough misunderstanding of corona optics, for that first-order minimum marks not some outer edge of a broad dark annulus as described and sketched by the Haneda tower operators, but the outer edge of the innermost annulus of high intensity of diffracted light. This clearly identifies basic misunderstanding of the matters at hand.

Fourth, the just-cited computation yielded a droplet diameter of 200 microns, which is so large as to be found only in drizzling or raining clouds and never in thin scattered clouds of the sort here reported, clouds that scarcely attenuated the full moon's light. That is, the suggestion that "patches of fog or mist" collected under an hypothesized inversion could grow droplets of that large size is meteorologically out of the question. If isolated patches of clouds interposed themselves on an observer's line of sight to some distant luminary, under conditions of the sort prevailing at Haneda that night, drop diameters down in the range of 10–20 microns would be the largest one could expect, and the corona-size would be some 10 to 20 times greater than the 3 milliradians which was plugged into the Exner equation in the above, b), and

Fifth, the vague suggestion that "Raman brightening" or other "interference effects associated with propagation within and near the top of an inversion" is involved here makes the same serious error that is made in attempted optical explanations of other cases in the Condon Report. Here we are asked to consider that light from Capella, whose altitude was about 8 deg. above the NE horizon (a value that I confirm) near the time of the Haneda observations, was subjected to Raman brightening or its equivalent; yet one of the strict requirements of all such interference effects is that the ray paths impinge on the inversion surface at grazing angles of incidence of only a small fraction of a degree. No ground observer viewing Capella at 8 deg. elevation angle could possibly see anything like Raman brightening, for the pertinent angular limits would be exceeded by one or two orders of magnitude. Added to this measure of misunderstanding of the optics of such interference phenomena in this attempted explanation is the further difficulty that, for any such situation as is hypothesized in the Condon Report explanation, the observer's eye must be physically located at or directly under the index-discontinuity, which would here mean up in the air at the altitude of the hypothesized inversion. But all of the Haneda observations were made from the ground level. Negation of Raman brightening leaves one more serious gap in the Capella hypothesis, since its magnitude of 0.2 lies at a brightness level well below that of Jupiter, yet the Haneda observers seem to have been comparing the object's luminosity to Jupiter's and finding it far brighter, not dimmer.

Sixth, the Condon Report mentions the independent sighting from Tachikawa AFB, but fails to bring out that the line of sight from that observing site (luminary described as lying over Tokyo Bay, as seen from Tachikawa) pointed more than 45 deg. away from Capella, a circumstance fatal to fitting the Capella hypothesis to both sightings. Jupiter lay due East, not "over Tokyo Bay" from Tachikawa, and it had been rising in the eastern sky for many days, so it is, in any event, unlikely to have suddenly triggered an independent response at Tachikawa that night. And, conversely, the area intersection of the reported lines of sight from Haneda and Tachikawa falls in just the North Bay area where Shiroi GCI first got radar returns and where all the subsequent radar activity was localized.

Seventh, nothing in the proffered explanations in the Condon Report confronts the reported movements and disappearances of the luminous object that are described in the Bluebook case-file on Haneda. If, for the several reasons offered above, we conclude that not only apparent radial motions, but also lateral and climbing motions were observed, neither diffraction nor Raman effects can conceivably fit them.

Eighth, the overall configuration as seen through 7X binoculars, particularly with four smaller lights perceived on the lower edge of the dark annulus, is not in any sense explained by the ideas qualitatively advanced.

Ninth, the Condon Report puts emphasis on the point that, whereas Haneda and Tachikawa observers saw the light, airmen at the Shiroi GCI site went outside and looked in vain for the light when the plotted radar position showed one or more targets to their south or south-southeast. This is correct. But we are quite familiar with both highly directional and semi-directional light sources on our own technological devices, so the failure to detect a light from the Shiroi side does not very greatly strengthen the hypothesis that Capella was the luminary in the Haneda visual sightings. The same can be said for lack of visual observations from the F-94, which got only radar returns as it closed on its target.

I believe that it is necessary to conclude that the "explanation" proposed in the Condon Report for the visual portions of the Haneda case are almost wholly unacceptable. And I remark that my analysis of many other explanations in the Condon Report finds them to be about equally weak in their level of scientific argumentation. We were supposed to get in the Condon Report a level of critique distinctly better than that which had come from Bluebook for many years; but much of the critique in that Report is little less tendentious and ill-based than that which is so dismaying in 22 years of Air Force discussions of UFO cases. The above stands as only one illustration of the point I make there; many more could be cited.

Next we must examine the radar aspects of the 8/5–6/52 Haneda case.

Radar Observations

Shortly after the initial visual sighting at Haneda, the tower controllers alerted the Shiroi GCI radar unit (located about 15 miles NE of central Tokyo), asking them to look for a target somewhere NE of Haneda at an altitude which they estimated (obviously on weak grounds) to be somewhere between 1500 and 5000 feet, both those figures appearing in the Bluebook case-file. Both a CPS-1 search radar and a CPS-4 height-finder radar were available at Shiroi, but only the first of those picked up the target, ground clutter interference precluding useful CPS-4 returns. The CPS-1 radar was a 10-cm, 2-beam set with peak power of 1 megawatt, PRF of 400/sec, antenna tilt 3 deg., and scan-rate operated that night at 4 rpm. I find no indication that it was equipped with MTI, but this point is not certain.

It may help to keep the main sequence of events in better time order if I first put down the principal events that bear on the radar sightings from ground and air, and the times at which these events occurred. In some instances a 1–2 minute range of times will be given because the case-file contains more than a single time for that event as described in separate sections of the report. I indicate 0015-16 LST (all times still LST) as the time of first airborne radar contact by the F-94, and discuss that matter in more detail later, since the Condon Report suggests a quite different time.

Time (LST)	Event
2330	Tower controllers at Haneda see bright light to NE, call Shiroi GCI within a few minutes.
2330-45	Lt. A, Shiroi radar controller on evening watch, looks for returns, finds 3-4 stationary blips to NE of Haneda on low beam of CPS-1.
2345	Lt. B comes on duty for midwatch at Shiroi; he and Lt. A discuss possible interceptor scramble.
2355	Lt. A calls Johnson AFB, asks for F-94 scramble. Fuel system trouble causes delay of 5-10 min.
0001	Lt. B has unknown in right orbit at varying speeds over north Tokyo Bay, 8 miles NE of Haneda. Loses contact again.
0003-04	F-94 airborne out of Johnson AFB, Lt. P as pilot, Lt. R, radarman.
0009-10	Shiroi alerts F-94 to airborne target to its starboard as it heads down Tokyo Bay, and Lt. P visually identifies target as C-54 in pattern to land at Haneda. Lt. B instructs Lt. P to begin search over north Bay area at flight altitude of 5000 ft.
0012	Shiroi regains CPS-1 contact on unknown target in right orbit over same general area seen before, target splits into three separate targets, and Lt. B vectors F-94 toward strongest of three returns.
0015-16	F-94 gets airborne radar contact on moving target at range and bearing close to vector information, has to do hard starboard turn to keep onscope as target moves with acceleration across scope.
0017-18	After 90 seconds pursuit, with no lock-on achieved, target moves offscope at high speed; Shiroi GCI tracks both unknown and F-94 into its ground clutter, where both are then lost in clutter.</td>
0033	Shiroi releases F-94 from scramble-search
0040	F-94 visually spots another C-54, over Johnson.
0120	F-94 lands back at Johnson.

Thus the period 2330 on 8/5 through about 0018 on 8/6 is of present interest: Next, events in that period will be examined in closer detail.

A. ***Initial attempts at radar detection from Shiroi GCI.*** When, at about 2335 or so, Haneda requested Shiroi to search the area of the bay to the NE of Haneda (SSW from Shiroi, roughly), Lt. A, then duty controller at Shiroi, found his CPS-4 giving too much ground clutter to be useful for the relatively low estimated heights Haneda had suggested. Those heights are indicated as 1500–2000 ft in one portion of the case-file, though Airman A elsewhere gave 5000 ft as his impression of the height. Clearly, lack of knowledge of size and slant ranges precluded any exact estimates from Haneda, but they offered the above-indicated impressions.

Trying both low and high beams on the CPS-1 search radar, Lt. A did detect three or four blips "at a position 050 deg. bearing from Haneda, as reported by the tower, but no definite movement could be ascertained..." The report gives no information on the range from Shiroi, nor inferred altitude of those several blips, only the first of a substantial number of missing items of quite essential information that were not followed up in any Bluebook inquiries, as far as the case-file shows. No indication of the spacing of the several targets is given either, so it is difficult to decide whether to consider the above as an instance of "radar visual" concurrency or not. One summary discussion in the Bluebook case-file so construes it: "The radar was directed onto the target by visual observations from the tower. So it can safely be assumed that both visual and radar contacts involved the same object." By contrast, the Condon Report takes the position that there were no radar observations that ever matched the visual observations. The latter view seems more justified than the former, although the issue is basically unresolvable. One visual target won't, in any event, match 3-4 radar targets, unless we invoke the point that later on the main radar target split up into three separate radar targets, and assume that at 2335, 3-4 unknown objects were airborne and motionless, with only one of these luminous and visually detectable from Haneda. That is conceivable but involves too strained assumptions to take very seriously; so I conclude that, even in this opening radar search, there was not obvious correspondence between visual and radar unknowns. As we shall see, later on there was definitely not correspondence, and also the F-94 crew never spotted a visual target. Thus, Haneda cannot be viewed as a case involving the kind of "radar-visual" concurrency which does characterize many other important cases. Nonetheless,

both the visual and the radar features, considered separately, are sufficiently unusual in the Haneda case to regard them as mutually supporting the view that inexplicable events were seen and tracked there that night.

One may ask why a radar-detected object was not seen visually, and why a luminous object was not detected on search radar; and no fully satisfactory answer lies at hand for either question. It can only be noted that there are many other such cases in Bluebook files and that these questions stand as part of the substantial scientific puzzle that centers around the UFO phenomena. We know that light-sources can be turned off, and we do know that ECM techniques can fool radars to a certain extent. Thus, we might do well to maintain open minds when we come to these questions that are so numerous in UFO case analyses.

B. *F-94 scramble*. When Lt. B came on duty at 2345, he was soon able, according to Capt. Malven's summary in IR-35-52, "to make radar contact on the 50-mile high beam," whereupon he and Lt. A contacted the ADCC flight controller at Johnson AFB 35 miles to their west, requesting that an interceptor be scrambled to investigate the source of the visual and the radar sightings.

An F-94B of the 339th Fighter-Interceptor Squadron, piloted by Lt. P, with Lt. R operating the APG-33 air-intercept radar, was scrambled, though a delay of over ten minutes intervened because of fuel-system difficulties during engine run-up. The records show the F-94 airborne at about 0003-04, and it then took about 10 minutes to reach the Tokyo Bay area. The APG-33 set was a 3-cm (X-band) set with 50 KW power, and lock-on range of about 2500 yards, according to my information. The system had a B-scope, i.e., it displayed target range vs. azimuth. The case-file notes that: "The APG-33 radar is checked before and after every mission and appeared to be working normally."

At 0009, Shiroi picked up a moving target near Haneda and alerted the F-94 crew, who had no difficulty identifying it visually as an Air Force C-54 in the Haneda pattern. The crew is quoted in the report as reporting "exceptional visibility." Shiroi instructed the F-94 to begin searching at 5000 ft altitude as it got out over the Bay. But before proceeding with events of that search, a GCI detection of a moving target at about 0001 must be reviewed.

C. *First GCI detection of orbiting object*. Just before the F-94 became airborne out of Johnson AFB, Lt. B picked up the first definitely unusual moving target, at about 0000-01. His statement in the Bluebook case-file reads: "At the time of the scramble, I had what was believed to be the object in radar contact. The radar sighting indicated the object to be due south of this station over Tokyo Bay and approximately eight (8) miles northeast of Haneda. The target was in a right orbit moving at varying speeds. It was impossible to estimate speed due to the short distance and times involved." That passage is quoted in the Condon Report, but not the next, which comes from Malven's summary and indicates that Lt. B only meant that it was impossible to estimate the target's speed with much accuracy. The omitted passage is interesting, for it is one of a number of indications that anomalous propagation (which is the Condon Report's explanation for the radar sightings) is scarcely creditable:

> An F-94 was scrambled to investigate. The object at this time had left the ground clutter and could be tracked (on the CPS-1) at varying speeds in a right orbit. Although impossible to accurately estimate speed, Lt. B gave a rough estimate of 100–150 knots, stopping, and hovering occasionally, and a maximum speed during the second orbit (just before F-94 was vectored in) of possibly 250–300 knots.

A map accompanying IR-35-52 shows the plotted orbiting path of the unknown target. The orbit radius is approximately 4 miles, centered just off the coast from the city of Funabashi, east of Tokyo. The orbiting path is about half over land, half over water. The map sketch, plus the file comments, imply that GCI had good contacts with the target only while it was moving out over the Bay. The ground-clutter pattern of the CPS-1 is plotted on the same map (and on other maps in the file), and it seems clear that the difficulty in tracking the target through the land portion of the roughly circular orbit was that most of that portion lay within the clutter area. The presumption is strong that this set did not have MTI, which is unfortunate.

The circumference of the orbit of about 4-mi radius would be about 25 miles. Taking Lt. B's rough estimate of 100–150 knots in the first of the two circuits of this orbit (i.e., the one he detected at about 0001), a total circuit-time of perhaps 12–13 minutes is indicated. Although the basis for this time-estimate is quite rough, it matches

reasonably well the fact that it was about 0012 when it had come around again, split up into three targets, and looped onshore again with the F-94 in pursuit this time.

If the object executing the above orbits had been the luminous object being watched from Haneda, it would have swung back and forth across their sky through an azimuth range of about 30 deg. Since no such motion seems to have been noted by the Haneda observers, I believe it must be concluded that the source they watched was distinct from the one radar-tracked in orbit.

D. ***Second orbit and F-94 intercept attempt.*** The times given in Lt. B's account of this phase of the sighting do not match those given by the pilot and radarman of the F-94 in their signed statements in the file. Other accounts in the file match those of the aircrew, but not the times in Lt. B's summary. This discrepancy (about 10–12 minutes) is specifically noted in Capt. Malven's IR-35-52 summary: "The ten minute difference in time between the statement by Lt. B, 528th ACGW SQ, and that reported by other personnel concerned, is believed to be a typographical error, since the statement agrees on every other portion of the sighting." That Lt. B and the aircrew were describing one and the same intercept seems beyond any doubt; and in view of Malven's quoted comment, I here use the times recorded by the aircrew and accepted as the correct times in other parts of the case-file. Further comment on this will be given below.

After completing the first of the two orbits partially tracked by GCI Shiroi, the target came around again where it was out of the CPS-1 ground- clutter pattern, and Lt. B regained contact. Malven's summary comments on the next developments as follows: "At 0012 the object reportedly broke into three smaller contacts, maintaining an interval of about 1/4 miles, with one contact remaining somewhat brighter. The F-94 was vectored on this object, reporting weak contact at 1500 and loss of contact at 0018. Within a few seconds, both the F-94 and the object entered the ground clutter and were not seen again."

The same portion of the incident is summarized in Lt. B's account (with different times), with the F-94 referred to by its code-name "Sun Dial 20." Immediately following the part of his account referring to the first starboard orbit in which he had plotted the target's movements, at around 0001, comes the following section: "Sun Dial 20 was ordered to search the Tokyo Bay area keeping a sharp lookout for any unusual occurrences. The object was again sighted by radar at 0017 on a starboard orbit in the same area as before. Sun Dial 20 was vectored to the target. He reported contact at 0025 and reported losing contact at 0028. Sun Dial 20 followed the target into our radar ground clutter area and we were unable to give Sun Dial 20 further assistance in re-establishing contact. Sun Dial 20 again resumed his visual search of the area until 0014, reporting negative visual sighting on this object at any time." If Malven's suggestion of typographical error is correct, the in-contact times in the foregoing should read 0015 and 0018, and presumably 0017 should be 0012. But regardless of the precise times, the important point is that Lt. B vectored the F-94 into the target, contact was thereby achieved, and Lt. B followed the target and pursuing F-94 northeastward into his ground clutter. I stress this because, in the Condon Report, the matter of the different times quoted is offered as the sole basis of a conclusion that ground radar and airborne radar were never following the same target. This is so clearly inconsistent with the actual contents of the case-file that it is difficult to understand the Report rationale.

Even more certain indication that the GCI radar was tracking target and F-94 in this crucial phase is given in the accounts prepared and signed by the pilot and his radarman. Here again we meet a code-designation, this time "Hi-Jinx," which was the designation for Shiroi GCI used in the air-to-ground radio transmissions that night and hence employed in these next two accounts. The F-94 pilot, Lt. P states: "The object was reported to be in the Tokyo Bay area in an orbit to the starboard at an estimated altitude of 5,000 feet. I observed nothing of an unusual nature in this area; however, at 0016 when vectored by Hi-Jinx on a heading of 320 degrees, and directed to look for a bogie at 1100 o'clock, 4 miles, Lt. R made radar contact at 10 degrees port, 6000 yards. The point moved rapidly from port to starboard and disappeared from the scope. I had no visual contact with the target."

And the signed statement from the radarman, Lt. R, is equally definite about these events: "At 0015 Hi-Jinx gave us a vector of 320 degrees. Hi-Jinx had a definite radar echo and gave us the vector to intercept the unidentified target. Hi-Jinx estimated the target to be at 11 o'clock to us at a range of 4 miles. At 0016 I picked up the radar contact at 10 degrees port, 10 degrees below at 6,000 yards. The target was rapidly moving from port to starboard

and a 'lock on' could not be accomplished. A turn to the starboard was instigated to intercept target which disappeared on scope in approximately 90 seconds. No visual contact was made with the unidentified target. We continued our search over Tokyo Bay under Hi-Jinx control. At 0033 Hi-Jinx released us from scrambled mission..."

Of particular importance is the very close agreement of the vectoring instructions given by Shiroi GCI to the F-94 and the actual relative position at which they accomplished radar contact; GCI said 4 miles range at the aircraft's 11 o'clock position, and they actually got radar contact with the moving target at a 6000-yard range, 10 degrees to their port. Nearly exact agreement, and thus incontrovertibly demonstrating that ground-radar and airborne radar were then looking at the same moving unknown target, despite the contrary suggestions made in the Condon Report. Had the Condon Report presented all of the information in the case-file, it would have been difficult to maintain the curious position that is maintained all of the way to the final conclusion about these radar events in the Condon Report's treatment of the Haneda case.

That the moving target, as seen by both ground and airborne radar was a distinct target, though exhibiting radar cross-section somewhat smaller than that typical of most aircraft, is spelled out in Malven's IR-35-52 summary: "Lt.B, GCI Controller at the Shiroi GCI site, has had considerable experience under all conditions and thoroughly understands the capabilities of the CPS-1 radar. His statement was that the object was a bonafide moving target, though somewhat weaker than that normally obtained from a single jet fighter." And, with reference to the airborne radar contact, the same report states; "Lt. R, F-94 radar operator, has had about seven years' experience with airborne radar equipment. He states that the object was a bonafide target, and that to his knowledge, there was nothing within an area of 15–20 miles that could give the radar echo." It is exceedingly difficult to follow the Condon Report in viewing such targets as due to anomalous propagation.

Not only were there no visual sightings of the orbiting target as viewed from the F-94, but neither were there any from the Shiroi site, though Lt. B specifically sent men out to watch as these events transpired. Also, as mentioned earlier, it seems out of the question to equate any of the Haneda visual observations to the phase of the incident just discussed. Had there been a bright light on the unknown object during the time it was in starboard orbit, the Haneda observers would almost certainly have reported those movements. To be sure, the case-file is incomplete in not indicating how closely the Haneda observers were kept in touch as the GCI directed radar-intercept was being carried out. But at least it is clear that the Haneda tower controllers did not describe motions of the intensely bright light that would fit the roughly circular starboard orbits of radius near four miles. Thus, we seem forced to conclude either that the target the F-94 pursued was a different one from that observed at Haneda (likely interpretation), or that it was non-luminous during that intercept (unlikely alternative, since Haneda observations did not have so large a period of non-visibility of the source they had under observation 2330–0020).

Condon Report Critique of the Radar Sightings

The Bluebook case-file contains essentially no discussion of the radar events, no suggestion of explanations in terms of any electronic or propagational anomalies. The case was simply put in the "Unexplained" category back in 1952 and has remained in that category since then at Bluebook.

By contrast, the Condon Report regards the above radar events as attributable to anomalous propagation. Four reasons are offered (p. 126) in support of that conclusion:

1. The tendency for targets to disappear and reappear;
2. The tendency for the target to break up into smaller targets;
3. The apparent lack of correlation between the targets seen on the GCI and airborne radars;
4. The radar invisibility of the target when visibility was "exceptionally good."

Each of these four points will now be considered.

First, the "tendency for the targets to disappear and reappear" was primarily a matter of the orbiting target's moving into and out of the ground-clutter pattern of the CPS-1, as is clearly shown in the map that constitutes

Enclosure #5 in the IR-35-52 report, which was at the disposal of the Colorado staff concerned with this case. Ground returns from AP (anomalous propagation) may fade in and out as ducting intensities vary, but here we have the case of a moving target disappearing into and emerging from ground clutter, while executing a roughly circular orbit some 4 miles in radius. I believe it is safe to assert that nothing in the annals of anomalous propagation matches such behavior. Nor could the Borden-Vickers hypothesis of "reflections" off moving waves on inversions fit this situation, since such waves would not propagate in orbits, but would, at best, advance with the direction and speed of the mean wind at the inversion. Furthermore, the indicated target speed in the final phases of the attempted intercept was greater than that of the F-94, i.e., over 400 knots, far above wind speeds prevailing that night, so this could not in any event be squared with the (highly doubtful) Borden-Vickers hypothesis that was advanced years ago to account for the 1952 Washington National Airport UFO incidents.

Second, the breakup of the orbiting target into three separate targets cannot fairly be referred to as a "tendency for the target to break up into smaller targets." That breakup event occurred in just one definite instance, and the GCI controller chose to vector the F-94 onto the strongest of the resultant three targets. And when the F-94 initiated radar search in the specific area (11 o'clock at 4 miles) where that target was then moving, it immediately achieved radar contact. For the Condon Report to gloss over such definite features of the report and merely allude to all of this in language faintly suggestive of AP seems objectionable.

Third, to build a claim that there was "apparent lack of correlation between the targets seen on the GCI and airborne radars" on the sole basis of the mismatch of times listed by Lt. B on the one hand and by the aircrew on the other hand, to ignore the specific statement by the intelligence officer filing IR-35-52 about this being a typographical error on the part of Lt. B, and, above all, to ignore the obviously close correspondence between GCI and airborne radar targeting that led to the successful radar-intercept, and finally to ignore Lt. B's statement that the F-94 "followed the target into our radar ground clutter," all amount to a highly slanted assessment of case details, details not openly set out for the reader of the Condon Report to evaluate for himself. I believe that all of the material I have here extracted from the Haneda case file fully contradicts the third of the Condon Report four reasons for attributing the radar events to AP. I would suggest that it is precisely the impressive correlation between GCI and F-94 radar targeting on this non-visible, fast-moving object that constitutes the most important feature of the whole case.

Fourth, it is suggested that AP is somehow suspected because of "the radar invisibility of the target when visibility was 'exceptionally good.'" This is simply unclear. The exceptional visibility of the atmosphere that night is not physically related to "radar invisibility" in any way, and I suspect this was intended to read "the invisibility of the radar target when visibility was exceptionally good." As cited above, neither the Shiroi crew nor the F-94 crew ever saw any visible object to match their respective radar targets. Under some circumstances, such a situation would indeed be diagnostic of AP. But not here, where the radar target is moving at high speed around an orbit many miles in diameter, occasionally hovering motionless (see Malven's account cited earlier), and changing speed from 100–150 knots up to 250–300 knots, and finally accelerating to well above an F-94's 375-knot speed.

Thus, *all four* of the arguments offered in the Condon Report to support its claim that the Haneda radar events were due to anomalous propagation must be rejected. Those arguments seem to me to be built up by a highly selective extraction of details from the Bluebook case-file, by ignoring the limits of the kind of effects one can expect from AP, and by using wording that so distorts key events in the incident as to give a vague impression where the facts of the case are really quite specific.

It has, of course, taken more space to clarify this Haneda case than the case is given in the Condon Report itself. Unfortunately, this would also prove true of the clarification of some fifteen to twenty other UFO cases whose "explanation" in the Condon Report contains, in my opinion, equally objectionable features, equally casual glossing-over of physical principles, of important quantitative points. Equally serious omissions of basic case information mark many of those case discussions in the Condon Report. Here I have used Haneda only as an illustration of those points; but I stress that it is by no means unique. The Condon Report confronted a disappointingly small sample of the old "classic" cases, the long-puzzling cases that have kept the UFO question alive over the years, and those few that it did confront it explained away by argumentation as unconvincing as that which disposes of the Haneda AFB

events in terms of diffraction of Capella and anomalous propagation. Scientifically weak argumentation is found in a large fraction of the case analyses of the Condon Report, and stands as the principal reason why its conclusions ought to be rejected.

Here are some other examples of UFO cases considered explained in the Condon Report for which I would take strong exception to the argumentation presented and would regard as both unexplained and of strong scientific interest (page numbers in Condon Report are indicated): Flagstaff, Ariz., 5/20/50 (p. 245); Washington, D. C., 7/19/52 (p. 153); Bellefontaine, O., 8/1/52 (p. 161); Gulf of Mexico, 12/6/52 (p. 148); Odessa, Wash., 12/10/52 (p. 140); Continental Divide, N.M., 1/26/53 (p. 143); Seven Isles, Quebec, 6/29/54 (p. 139); Niagara Falls, N.Y., 7/25/57 (p. 145); Kirtland AFB, N.M., 11/4/57 (p. 141); Gulf of Mexico, 11/5/57 (p. 165); Peru, 12/30/66 (p. 280); Holloman AFB, 3/2/67 (p. 150); Kincheloe AFB, 9/11/67 (p. 164); Vandenberg AFB, 10/6/67 (p. 353).

Case 4. Kirtland AFB, November 4, 1957

Brief summary: Two CAA control tower operators observe a lighted egg-shaped object descend to and cross obliquely the runway area at Kirtland AFB (Albuquerque), hover near the ground for tens of seconds, then climb at unprecedented speed into the overcast. On radar, it was then followed south some miles, where it orbited a number of minutes before returning to the airfield to follow an Air Force aircraft outbound from Kirtland.

Introduction

This case, discussed in the Condon Report on p. 141, is an example of a UFO report which had lain in Bluebook files for years, not known to anyone outside of Air Force circles.

Immediately upon reading it, I became quite curious about it; more candidly, I became quite suspicious about it. For, as you will note on reading it for yourself, it purports to explain an incident in terms of an hypothesis with some glaringly improbable assumptions, and makes a key assertion that is hard to regard as factual. Let me quote from the first descriptive paragraph: “Observers in the CAA (now FAA) control tower saw an unidentified dark object with a white light underneath, about the ‘shape of an automobile on end’, that crossed the field at about 1500 ft and circled as if to come in for a landing on the E-W runway. This unidentified object appeared to reverse direction at low altitude, while out of sight of the observers behind some buildings, and climbed suddenly to about 200–300 ft., heading away from the field on a 120 deg. course. Then it went into a steep climb and disappeared into the overcast.” The Condon Report next notes that; “The Air Force view is that this UFO was a small, powerful private aircraft, flying without flight plan, that became confused and attempted a landing at the wrong airport. The pilot apparently realized his error when he saw a brightly-lit restricted area, which was at the point where the object reversed direction...”

The Report next remarks very briefly that the radar blip from this object was described by the operator as a “perfectly normal aircraft return”, that the radar tract “showed no characteristics that would have been beyond the capabilities of the more powerful private aircraft available at the time,” and the conclusion arrived at in the Condon Report, without further discussion, is that; “There seems to be no reason to doubt the accuracy of this analysis.”

Some Suspect Features of the Condon Report’s Explanation

It seemed to me that there were several reasons “to doubt the accuracy of this analysis.” First, let me point out that the first line or two of the account in the Condon Report contains information that the incident took place with “light rain over the airfield”, late in the evening (2245-2305 MST), which I found to be correct, on checking meteorological records. Thus the reader is asked to accept the picture of a pilot coming into an unfamiliar airfield at night and under rain conditions, and doing a 180 deg. return at so low an altitude that it could subsequently climb suddenly to about 200–300 ft; and we are asked to accept the picture of this highly hazardous low-altitude nighttime turn being executed so sharply that it occurred “while out of sight of the observers behind some buildings.” Now

these are not casual bystanders doing the observing, but CAA controllers in a tower designed and located to afford full view of all aircraft operations occurring in or near its airfield. Hence my reaction to all of this was a reaction of doubt. Pilots don't live too long who execute strange and dangerous maneuvers of the type implied in this explanation. And CAA towers are not located in such a manner that "buildings" obscure so large a block of airfield-airspace as to permit aircraft to do 180 deg. turns while hidden from tower view behind them (at night, in a rain!).

Search for the Principal Witnesses

The foregoing points put such strong a priori doubt upon the "private aircraft" explanation advanced in the Condon Report that I began an independent check on this case, just as I have been checking several dozen other Condon Report cases in the months since publication of the report. Here, as in all other cases in the Report, there are no witness-names given to facilitate independent check, but by beginning my inquiries through the FAA, I soon got in touch with the two CAA tower observers, both of whom are still with FAA, one in Oklahoma, one in California. Concurrently, I initiated a number of inquiries concerning the existence of any structures back in 1957 that could have hidden an aircraft from tower view in the manner suggested by the Report. What I ultimately learned constitutes only one example of many that back up the statement I have been making recently to many professional groups: The National Academy of Sciences is going to be in a most awkward position when the full picture of the inadequacies of the Condon Report is recognized; for I believe it will become all too obvious that the Academy placed its weighty stamp on this dismal report without even a semblance of rigorous checking of its contents.

The two tower controllers, R. M. Kaser and E. G. Brink, with whom I have had a total of five telephone interviews in the course of clarifying the case, explained to me that the object was so unlike an aircraft and exhibited performance characteristics so unlike those of any aircraft flying then or now that the "private aircraft" explanation was quite amusing. Neither had heard of the Air Force explanation, neither had heard of the Condon Project concurrence therein, and, most disturbing of all, neither had ever heard of the Condon Project: *No one on the Condon Project ever contacted these two men!* A half-million-dollar Project, a report filled with expensive trivia and matters shedding essentially no light on the heart of the UFO puzzle, and no project investigator even bothers to hunt down the two key witnesses in this case, so casually closed by easy acceptance of the Bluebook "aircraft" explanation.

Failure to locate those two men as part of the investigation of this case is all the more difficult to understand because CAA tower operators involved as witnesses of a UFO incident were actually on duty would seem to constitute just the type of witnesses one should most earnestly seek out in attempts to clarify the UFO puzzle. In various sections of the Condon Report, witness-shortcomings (lack of experience, lack of familiarity with observing things in the sky, basic lack of credibility, etc.) are lamented, yet here, where the backgrounds of the witnesses and the observing circumstances are highly favorable to getting reliable testimony, the Colorado group did not bother to locate the witnesses. (This is not an isolated example. Even in cases which were conceded to be unexplained, such as the June 23, 1955 Mohawk Airlines multiple-witness sighting near Utica, N.Y. [p. 143 in Report], or the Jackson, Alabama, November 14, 1956 airline case, both conceded to be unexplained, I found on interviewing key witnesses as part of my cross-check on the Condon Report, that no one from Colorado had ever talked to the witnesses. In still other important instances, only a fraction of the available witnesses were queried in preparing the Condon Report. Suggestions that the report was based on intensive investigatory work simply are not correct.)

Information Gained from Witness-Interviews

When I contacted Kaser and Brink, they told me I was the first person to query them on the case since their interrogation by an Air Force captain from Colorado Springs, who had come to interview them at Kirtland just after the incident. Subsequently, I secured the Bluebook case-file on this sighting, and ascertained that a Capt. Patrick O. Shere, from Ent AFB did the interrogation on Nov. 8, 1957, just four days after the sighting.

The accounts I secured in 1969 from Kaser and Brink matched impressively the information I found in Shere's 1957 report in the Bluebook case-file. There were a few recollective discrepancies of distance or time estimates in

the witness accounts given in 1969, as compared with their 1957 statements to the Air Force, but the agreements were far more significant than the small number of mismatches.

In contrast to the somewhat vague impressions I gained (and other readers would surely also gain) from reading the Condon Report version, here is what is in the Bluebook case-file and what they told me directly.

The object came down in a rather steep dive at the east end of Runway 26, left the flight line, crossed runways, taxiways and unpaved areas at about a 30-degree angle, and proceeded southwestward towards the CAA tower at an altitude they estimated at a few tens of feet above ground. Quickly getting 7x binoculars on it, they established that it had no wings, tail, or fuselage, was elongated in the vertical direction, and exhibited a somewhat egg-shaped form (KaCer). It appeared to be perhaps 15–20 ft in vertical dimension, about the size of an automobile on end, and had a single white light in its base. Both men were emphatic in stressing to me that *it in no way resembled an aircraft*.

It came towards them until it reached a B-58 service pad near the northeast corner of Area D (Drumhead Area, a restricted area lying south of the E-W runway at Kirtland). That spot lay about 3000 ft ENE of the tower, near an old machine-gun calibration bunker still present at Kirtland AFB. There it proceeded to stop completely, hover just above ground *in full view* for a time that Kaser estimated at about 20 seconds, that Brink suggested to me was more like a minute, and that the contemporary Air Force interrogation implied as being rather more than a minute. Next they said it started moving again, still at very low altitude, still at modest speed, until it again reached the eastern boundary of the field. At that point, the object climbed at an extremely rapid rate (which Kaser said was far faster than that of such modern jets as the T-38).

The Bluebook report expresses the witness' estimate of the climb rate as 45,000 ft/min, which is almost certainly a too-literal conversion from Mach 1. My phone-interview notes include a quote of Brink's statement to me that, "There was no doubt in my mind that no aircraft I knew of then, or ever operating since then, would compare with it. "Both men were emphatic in stating to me that at no time was this object hidden by any buildings. I confirmed through the Albuquerque FAA office that Area D has never had anything but chain-link fence around it, and that no buildings other than scattered one-story metal buildings ever existed either inside or outside Area D in that sector. The bunker is only about 15-20 feet high, judging from my own recent observations and photos of it from the air. The Bluebook interrogation report contains no statements hinting that the object was ever hidden from view by any structures (although the Bluebook file contains the usual number of internally inconsistent and confusingly presented details).

I asked both men whether they alerted anyone else while the foregoing events were taking place. They both indicated that the object was of such unprecedented nature that it wasn't until it shot up into the overcast that they got on the phone to get the CAA Radar Approach Control (RAPCON) unit to look for a fast target to the east. Kaser recalled that a CPN-18 surveillance radar was in use at that RAPCON unit at that time, a point confirmed to me in subsequent correspondence with the present chief of the Albuquerque Airport Traffic Control Tower, Mr. Robert L. Behrens, who also provided other helpful information. Unfortunately, no one who was in the Albuquerque/Kirtland RAPCON unit in 1957 is now available, and the person whom Kaser thought was actually on the CPN-18 that night is now deceased. Thus I have only Kaser and Brink recollections of the radar-plotting of the unknown, plus the less than precise information in the Nov. 6, 1957 TWX to Bluebook. Capt. Shere did not, evidently, take the trouble to secure any information from radar personnel.

As seen on the RAPCON CPN-18, the unknown target was still moving in an easterly direction when the alert call came from the tower. It then turned southward, and as Kaser recalled, moved south at very high speed, though nothing is said about speed in the Kirtland TWX of Nov. 6, 1957. It proceeded a number of miles south towards the vicinity of the Albuquerque Low Frequency Range Station, orbited there for a number of minutes, came back north to near Kirtland, took up a trail position about a half-mile behind an Air Force G-46 just then leaving Kirtland, and moved off-scope with the G-46. The Nov. 8, 1957 report from Commander, 34th Air Div. to ADC and to the Air Technical Intelligence Command closed with the rather reasonable comment: "Sighting and descriptions conform to no known criteria for identification of UFOs." The follow-up report of Nov. 13, 1957, prepared by Air Intelligence personnel from Ent AFB, contains a number of relevant comments on the experience of the two witnesses (23 years

of tower control work between them as of that date), and on their intelligence, closing with the remarks: "In the opinion of the interviewer, both sources (witnesses) are considered completely competent and reliable."

Critique of the Evaluation in the Condon Report

The Kirtland AFB case is a rather good (though not isolated) instance of the general point I feel obliged to make on the basis of my continuing check of the Condon Report: In it we have not been given anything superior to the generally casual and often incompetent level of case-analysis that marked Bluebook's handling of the UFO problem in past years.

In the Bluebook files, this case is carried as "Possible Aircraft". Study of the 21-page case-file reveals that this is based solely on passing comment made by Capt. Shere in closing his summary letter of November 8: "The opinion of the preparing officer is that this object may possibly have been an unidentified aircraft, possibly confused by the runways at Kirtland AFB. The reasons for this opinion are: (a) The observers are considered competent and reliable sources, and in the opinion of this interviewer actually saw an object they could not identify. (b) The UFO was tracked on a radarscope by a competent operator. (c) The object does not meet identification criteria for any other phenomena."

The stunning non sequitur of that final conclusion might serve as an epitome of 22 years of Air Force response to unexplainable objects in our airspace. But when one then turns to the Condon Report's analysis and evaluation, a report that was identified to the public and the scientific community as the definitive study of UFOs, no visible improvement is found. Ignoring almost everything of interest in the case-file except that a lighted airborne object came down near Kirtland airfield and left, the Condon Report covers this whole intriguing case in two short paragraphs, cites the Air Force view, embellishes it a bit by speaking of the lost aircraft as "powerful" (presumably to account for its observed Mach 1 climb-out) and suggesting that it was "flying without flight plan" (this explains why it was wandering across runways and taxiways at night, in a rain, at an altitude of a few tens of feet), and the report then closes off the case with a terse conclusion: "There seems to be no reason to doubt the accuracy of this analysis.

Two telephone calls to the two principal witnesses would have confronted the Colorado investigators with emphatic testimony, supporting the contents (though not the conclusions) of the Bluebook file, and that would have rendered the suggested "powerful private aircraft" explanation untenable. By not contacting the witnesses and by overlooking most of the salient features of the reported observations, this UFO report has been left safely in the "explained" category where Bluebook put it. One has here a sample of the low scientific level of investigative and evaluative work that will be so apparent to any who take the trouble to study carefully and thoroughly the Condon Report on UFOs. AAAS members are urged to study it carefully for themselves and to decide whether it would be scientifically advisable to accept it as the final word on the 22-year-long puzzle of the UFO problem. I submit that it is most inadvisable.