
Exeunt Exeter?

Should this 1965 New Hampshire classic finally shuffle off the stage?

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introduction

Joe Nickell and James McGaha of CSI (Committee for Skeptical Inquiry, formerly CSICOP) begin a recent (2011) article³ on the Exeter, New Hampshire sightings of September 2-3 1965 with a bold claim:

One of the great unsolved UFO cases—which provoked endless controversy between True Believers and Doubting Thomases—has at long last succumbed to investigation. The 1965 Exeter mystery is now explained.

Nickell and McGaha make an interesting case but may be overstating it. Their effort is well-founded and original. Unfortunately almost all of the parts that are well-founded are not original, and almost all of the parts that are original are not well-founded. The sightings may be explainable, but one comes away from their argument feeling that they have reached this conclusion for the wrong reasons.

Nickell and McGaha ask:

Why did the Pentagon not solve the case at the time? Perhaps in the welter of paperwork the clue we found so significant went unseen by anyone who could fully grasp its import and who had time to devote to the case. Naturally, everything is much clearer in hindsight.

It has been well known since 1965 that an aerial refuelling operation was one of Blue Book's earliest suspects to explain the silent, flashing red lights. Some sort of photographic mission was also considered, but the file (see Appendix) contains statements to the effect that the descriptions seemed typical of other cases explained as aerial refuelling. So they had clues. What they lacked was the ability to prove it, by finding a refuelling operation that could have been in the area at the right time. Hence their preferred focus on the B-47's of the SAC exercise Big Blast, and their ultimate failure to make this stick.

Unfortunately Nickell and McGaha are also unable to prove it. What they do is further refine the suspicion, by suggesting particular similarities between the pattern of lights and the "receiver lights" (otherwise known as director lights) carried by a KC-97 tanker during refuelling. This is provocative, but does not of course plug the hole that left BB's effort foundering. And when we examine Nickell's and McGaha's proposal in detail we find that not everything is clearer in hindsight after all.

the Nickell & McGaha thesis

In 1965 Blue Book (hereinafter BB) checked logs of activities in designated refuelling routes and came up with nothing. But they noted that the core incidents happened just after a SAC/NORAD training exercise called Big Blast "Coco" involving a number of B-47's in the Exeter area. The SAC Directorate of Operations was asked by letter and by phone about types and numbers of aircraft

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³ James McGaha and Joe Nickell, "'Exeter Incident' Solved! A Classic UFO Case, Forty-Five Years 'Cold'", *Skeptical Inquirer*, Volume 35.6, November/December 2011
http://www.csicop.org/si/show/exeter_incident_solved_a_classic_ufo_case_forty-five_years_cold

involved and their times of recovery. After checks were made SAC informed BB that the exercise involved ten B-47's from Pease AFB. No tanker was listed and BB did not find any evidence that this exercise involved aerial refuelling.

The file contains an unpursued claim that five "additional" B-47s were in the area, but as will see this appears to be a misunderstanding. In any case the main refuelling route was closed, for the very reason that Big Blast was taking place, and other adjacent refuelling routes were checked also. The bottom line was "no refuelling operations were conducted on the night of 2-3 September" and "there were no refuelling operations in the New England area during the time in question."

Still, refuelling or not, those B-47s would have been over Exeter during approach to Pease. They are such tempting suspects.... But the last one was counted back at 0135 and the core sightings did not begin until after 0200, lasting until well after 0300. BB badly wanted this to work, but the timing was apparently well-established by Air Force and police logs. Conclusion (reluctantly): Unidentified.

This is where Nickell and McGaha introduce a crucial innovation. Under the subhead "Solved!" they audaciously assume that actually there *was* a refuelling operation going on - specifically that at least one B-47 from Pease AFB was still in the air after the reported end of exercise Big Blast (in spite of the SAC statement to the contrary) and that this exercise "surely" would have involved a KC-97 tanker:

Just this type of craft operated out of Strategic Air Command bomber bases like that of Pease AFB and, indeed, would surely have been involved in a SAC/NORAD training exercise like that dubbed "Big Blast" of September 2-3, 1965. But what about the "fact" that this exercise—which was ongoing in the skies over Exeter at the time of the first sightings—had supposedly ended about an hour before Muscarello and officer Bertrand had their "close encounter"? It seems quite apparent that, although the particular exercise was reportedly over, there were still planes in the sky. Bertrand and Hunt, in fact, witnessed a B-47 jet at about the time the UFO disappeared.⁴ Perhaps it had just refueled.

So because "there were planes in the sky" they reason that there could after all have been a refuelling operation going on at the time, even though the Air Force investigation concluded that there were none that night in the New England area.

This is a bold assumption but Nickell and McGaha justify it as follows:

- 1) They recognised the rippling 1-2-3-4-5-4-3-2-1 sequence of the line of red lights on the UFO as a description of five red flashing "receiver lights" (director lights) on the belly of a KC-97 which would light up during approach to help guide the B-47 into position
- 2) The KC-97's refuelling boom would have hung out of the tail making an angle of around 60 deg with the horizontal axis of the plane (see Figs.1 & 6), and the red receiver lights would have been seen reflected from this boom. This neatly explains the witnesses' descriptions of a line of five red lights always inclined "at about a 60 degree angle".
- 3) And if the extended refuelling boom wobbled around before being successfully mated with the B-47 this would explain why the witnesses described the line of reflected lights as sometimes floating erratically "like a leaf".

We will focus our analysis of the theory on these three points.

4 See: Fuller, J.G., *Incident at Exeter*, G.P.Putnams/Berkley, New York 1967 p.58 & p.62.

analysis

First consider the receiver light panel itself. The lights are bright and could be visible from a very great range. But the individual lights will not be separately resolvable to the human eye beyond a comparatively small slant range. The size of the whole panel of lights can be measured from photographs and drawings of the 117ft (35m)-long KC-97 and I would estimate that the five adjacent lights occupy a length of less than about 10 ft (3m). At a distance of about 6 miles even a row of five geometrically idealised point sources of arbitrary brightness, separated from each other by a clear 30 inches (76cm), seen in perfect glare-free ocular conditions in a vacuum, will subtend an angle at the limit of the arcminute resolution acuity of the human eye. In other words they will appear as a single flashing point source, not a rippling line of lights making a distinct angle with the horizon. It makes no difference which of the lights is on at any moment because the eye cannot discriminate the tiny subtended angle between them.

Even inside this range, and again assuming idealised point sources aspected favourably to the line of sight and observed in idealised conditions where glare and atmospheric factors are not in play, the flash only starts to become a *just-perceptibly* spatially oscillating point source at the distance where the included angle between lights #1 and #5 starts to exceed about 3 arcmin. This reduces the upper limiting distance to about 2 miles.

To discriminate the positions of *individual* lights at all in such a way that an idealised eye could, in principle, perceive a sequence of flashes progressing along the line and back as described (123454321) then still assuming idealised point sources in idealised conditions the distance reduces to a little over one mile. In the real world, things are far worse than this, of course.

Firstly, the lights are neither point sources nor clearly separated - they are lamps housed behind diffusing filters that almost almost abut; secondly, there is atmospheric extinction and refraction to consider; and thirdly, and more importantly, these lights are very bright (they have to be turned down during closest approach so as not to dazzle the pilot of the receiving plane) and bright lights in darkness suffer significant loss of distinctness due to glare caused by the structures of the eye.

If these factors do no more than halve the effective acuity (an extremely generous assumption) then we would have to say that the *upper limiting distance* allowing even a marginal possibility of seeing the receiver light panel as a just-separated and countable series of sequentially flashing sources is around 1/2 mile, and the realistic distance in practice is much less.

Now, what of Nickell's and McGaha's theory that the witnesses were *not* seeing the brilliant receiver lights, that they were seeing instead their reflections on the refuelling boom? We can measure this object too and we find that the available length of boom which could be reached even in principle by photons emitted from the receiver lights is about 25 ft (see Fig.1). This is not a great length, but potentially five reflections on this boom could subtend about 2.5 times the angle of the receiver panel itself. Could they be discriminated?

In this case, the first thing to say is that the refueling boom is not a polished speculum neither does it have vertical (or near-vertical) flat (or near-flat) surfaces that could reflect light laterally from the receiver panel to witnesses on the ground when the plane is at low elevation above the treeline as reported. The boom is a tubular structure which in photographs tends to appear dull and shares the paint scheme of the KC-97 fuselage. This object might pick up some diffuse luminance along its undersurface from the bright receiver lights, which might be detectable from below, but it would not be capable of sending bright reflections in any direction, certainly not sideways, and certainly not focused specular images of five discrete light sources.

Yet this is the theory:- Five closely adjacent lights with 2ft between their centres, each diffused behind abutting filter panels and facing *down* from the belly of the plane, somehow produce five bright reflected images on a painted boom extended from the rear of the aircraft between 30 and 60 feet away. These reflections are distributed distinctly and countably along a 25-ft length of tube which is tilted only 26° from the horizontal plane of the light panel such that only light emitted almost sideways from the downward-facing panel can reach it at a shallow angle of incidence.

This all seems highly implausible. But, undaunted, let us assume that some remarkable image-forming mechanism *could* produce discrete bright reflections strung out along the length of the boom instead of merely a diffuse glow, what then? More tests present themselves:

Nickell and McGaha propose that the witnesses could not only discriminate and count the reflections but could also observe them wavering up and down due to fluctuations in the angle of the boom through a few degrees whilst it sought to mate with the receiving B-47. This motion was supposedly perceived by the witnesses as the object floating erratically "like a leaf". The B-47 refuelling altitude would be at least 13-14,000ft.⁵ Even if it took place vertically overhead at the minimum possible slant range a 10ft swing of the boom would subtend less than 2.5 arcminutes, which would be scarcely perceptible to the naked eye even in ideal conditions.

Moreover, not only were the unfeasible reflections of these lights observed with unfeasible clarity, no other lights *except* these reflections were visible - not even the brilliant primary light sources by which these necessarily dim reflections supposedly were caused - even though there were two closely forming large aircraft there, both with standard position lights and probably other lights, in particular anti-collision beacons - probably a rotating red beacon on the top of the tail fin (KC-97's usually also carried other special coloured identification beacons so that pilots knew which tanker was theirs⁶ - but maybe not always in a domestic setting).

Given the angle of the boom, it is obvious that, unless the KC-97 flies backwards, motion always occurs with the highest light foremost. But the UFO always moved with the *lowest* light foremost. Bertrand and Hunt both specifically noted this point in their original statements (see Appendix).

The reported angle of traverse from first position to last was from NE to N. Bertrand said he watched for 10 mins, Hunt (arriving late) said 5-8 minutes. What is the implied speed if it was close enough to resolve 5 lights? Could a KC-97, in the process of refuelling a jet, fly slow enough?

Let's assume a 15 arcmin subtense for all 5 lights. This is half the width of the moon and nothing like the angular sizes reported or implied, but should make it just possible for the eye to resolve separate lights in an inclined line. Starting from this conservative assumption, then (and remember that we are allowing the grossly implausible theory that the witnesses were seeing reflections along the boom, rather than the panel of receiver lights itself), 25 ft subtends 15 arcmin at 5700 ft or a little over one mile. So this is an upper bound on realistic slant range because beyond about a mile it would not be possible to resolve separate lights into a line.

5 'The KC-97 was a four-engine propeller driven airplane, and refueling was usually at about 13,000 to 14,000 feet altitude...' http://www.lmstandish.net/Old-times/B-47_days.htm

'After a successful rendezvous with the bomber, the tanker descended to the refueling altitude of 15,500 feet The low altitude, when compared to today's KC-135 and KC-10 operations, was one of the necessities of refueling jet bombers like the B-47 and B-52 with a reciprocating engine powered aircraft.'

<http://www.mewreckchasers.com/kc97art.html>

6 'Finding our assigned [KC-97] tankers at night was interesting because of the color of the rotating beacons they had. The code was Green, Amber, White, Red, Green, Amber. How do you remember that? "Warner Robins (a military base at Macon) is in the middle of Georgia." At night I have seen those beacons from 200 miles away.'

http://www.lmstandish.net/Old-times/B-47_days.htm

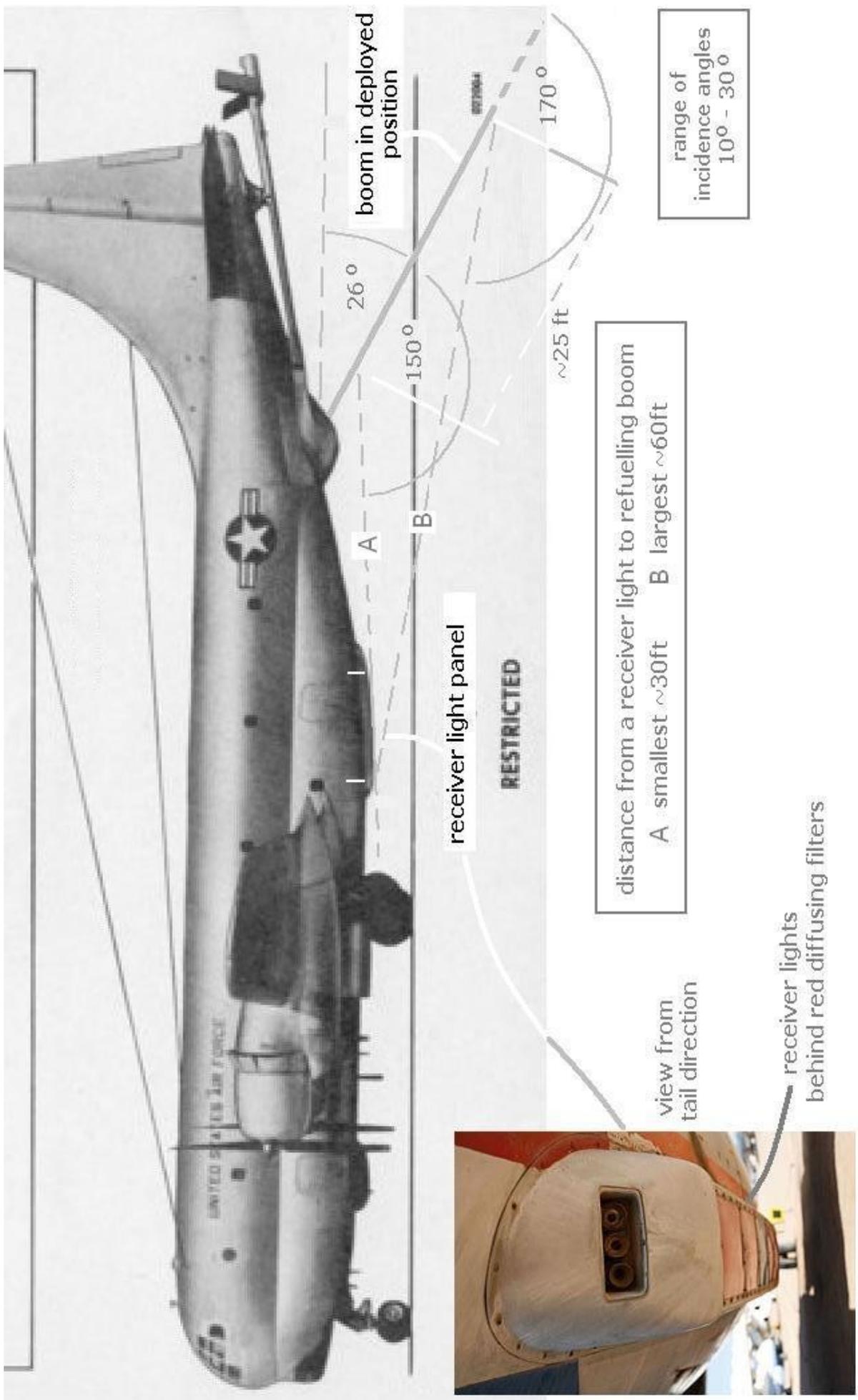


Fig.1 KC-97 showing geometry of deployed boom and light panel

Given this upper bound we can convert the angular rate of motion of the object (estimated angular distance covered in flight divided by the estimated duration of the sighting) into an approximate implied ground speed.

The policemen said that the direction of the first sighting was NE, that of the last sighting, where the lights went behind the tree line, due N, or the lights traversed about 45 deg. To be conservative again let's use the minimum duration of 5 min (half the duration estimated by Bertrand). We then have a small row of just-separable flashing lights travelling $\sim 9^\circ$ / min, which at a range of one mile corresponds to a true speed of 834 ft/min or about 10 mph.⁷

Clearly this result is adrift by at least an order of magnitude. A KC-97 needed its maximum speed to refuel fast jets like B-47s. This was always a problem. The early solution was "tobogganing" - climbing and building up speed in a dive to about 190 kt (~ 220 mph)⁸ - until the addition of jet pods to the KC-97L during the early 1960s which permitted a max speed of about 400 mph. In any case, we need in the order of hundreds, not tens, of mph.

Either the entire duration was only a few seconds instead of 5-10 minutes; or the right-to-left traverse of the object was only about 5° , not 45° from NE to N; or the KC-97 was in the order of 10 miles away, in which case the angular size of the whole array of hypothetical light reflections shrinks to only ~ 1.5 arcmin, far too small for even the sharpest eye to resolve them as other than a single flashing light (never mind an intimidating array of brilliant "car headlights").

The implied angular size of the object reported by Muscarello in the initial sighting is grossly larger than anything plausible for a KC-97. All lights were clearly separated in a line and only one was lit at a time, rippling in sequence 123454321, appearing to be 90 ft from #1 to #5, at phone-pole height nearly overhead, so the order of estimated size and distance are both ~ 100 ft or an implied angular width of $\sim 45^\circ$. The stated angular width of the receding object seen more distantly later by Bertrand and Hunt was baseball/grapefruit at arm's length ($\sim 10^\circ$) reducing to a quarter at arm's length ($\sim 2^\circ$) - much smaller but still at least an order of magnitude larger than even the largest barely-resolvable subtense of a KC-97's refuelling boom at any realistic distance.

In summary, every factor studied indicates that even if the reflective refuelling boom hypothesis were a plausible cause of the lights seen, the slant range to the KC-97 would have to have been *much less* than a mile, and therefore it needs to have been at the very least three times lower than the usual refuelling altitude (probably much lower even than this given a sighting elevation tens of degrees away from the zenith). A large 4-engine tanker like the KC-97 with or without added jet pods, with a B-47 jet bomber flying along with it in the act of refuelling, both within a few thousand feet of the witnesses, ought to have been very audible. But all witnesses made a point of noting the total silence. The report forms indicate a calm, clear night with only a light breeze.

Of course approximations based on witness estimates will contain error. But I think it reasonable to doubt that so large a discrepancy can be casually absorbed by arbitrary error margins given the physical, geometrical and optical limits and the fact that we have already incorporated conservative assumptions.

⁷ Note that for simplicity this assumes motion transverse only to the line of sight. The reported trajectory was substantially horizontal and transverse, above the line of trees, but with some component of apparent descent and/or recession. If the hypothetical plane were travelling away or approaching, making a smaller angle to the line of sight, then it could achieve a higher true speed for the same angular rate. But the correction is negligible for our purpose. For example if the recession angle to the line of sight is as small as 45° (i.e., instead of heading W the plane is heading NW) the implied correction is only proportional to $\sin 45^\circ$ or about 0.7 which would raise this to 14 mph.

⁸ <http://www.mewreckchasers.com/kc97art.html>

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air-refueling orbit and gave Hal a heading and altitude. The tanker pilot saw Hal approaching from above and departed the orbit for his refueling track. At the two-mile point, Hal pulled back on the throttles to decrease his rate of closure. They were five hundred feet below the tanker and slowly eased in behind the KC-97 Stratocruiser, its four engines churning at maximum power in a slight descent. Hal looked up at the tanker looming ahead and above and moved into the observation position. He watched for light direction from the boom operator—two amber, one green, two red lights on the belly of the large KC-97. He saw the forward amber light come on, urging him to move in closer. He moved in slowly. The green light illuminated, and he held in the contact position. He could see the boom operator in the tanker flying his boom toward the open refueling receptacle on the nose of the RB-47, right in front of his face. The aircraft pitched in the wake of the

Fig.2 A page from *"I Always Wanted to Fly: America's Cold War Airmen"*⁹



Fig.3 Nickell's & McGaha's photo (looking from the tail) of the five “red” lamps on a KC-97 director light panel, here saturation-enhanced to bring out filter colours (Refer to Fig.2 "Two amber, one green, two red lights on the belly of the big KC-97" and Fig.4)

⁹ Samuel, Wolfgang W. E., University Press of Mississippi, 2001, p.206

discussion

One issue that remains unresolved is the KC-97 director light sequence and the lamp filter colours. Colonel Wolfgang W. E. Samuel's¹⁰ compilation of USAF Cold War oral histories, *I Always Wanted to Fly: America's Cold War Airmen*, describes the use of these lights on a KC-97 during a B-47 refuelling operation as follows (see Fig.2):

He watched for light direction from the boom operator - two amber, one green, two red lights on the belly of the big KC-97. He saw the forward amber light come on, urging him to move in closer. He moved in slowly. The green light illuminated, and he held in the contact position.

Plainly this configuration of multicoloured lights is very different in pattern and operation from the rippling sequence of five red lights described, apparently from memory of his own unspecified Air Force duty, by James McGaha.

Nickell and McGaha state that the latter's memory was checked with a visit to a KC-97 in an aerospace museum, and they offer a photograph of the plane's director light panel as proof. Unfortunately the angle of this shot (shown as an insert in Fig.1) is not ideal to display the lamps, but it appears that the filter colour of the central lamp is decidedly less red than the pairs flanking it fore and aft. Fig.3 shows the same photo with the colour saturation enhanced to bring this out. It appears very possible to this author that the nearest of the nearer pair of orange lights shown in the photo is the "forward amber light" described in Samuel's book, that the distinctly greenish panel behind this pair corresponds to the the central "green light" directing the receiving pilot to hold contact position, and that the furthest pair of lights is the "two red lights". Clearly this possible anomaly invites further investigation.

After writing the above the author received definitive evidence from Hanoch Ben Keshet¹¹ who had independently noticed the same anomaly and sent links to several photographs including those shown in Fig.4 below.



Fig.4. Better photos of the KC-97 director light panel ¹²

¹⁰ http://en.wikipedia.org/wiki/Wolfgang_W.E._Samuel

¹¹ Emails to the author, May 03 2012

¹² Photos by Michael Benolkin (copyright © 2004-2010 *TacAir Publications*) at

As Hanoch Ben Keshet points out, the centre filter is *plainly* not red, but is green (or blue), as suspected, and although a difference between red and amber pairs (fore and aft of the green lamp) can't be clearly made out here, the lettering on the red/amber panels (partly legible in the original photos by Michal Benolkin) is a proof that these lamps were lit individually for specific signals, as in the quote above, not just flashed in a continuous sequence. The lettering on the filters reads

DWN, FWD, ?F? (probably AFT), and UP

It is also relevant to the refuelling theory that Officer Bertrand reportedly had 4 years in the Air Force working on "refuelling operations with aircraft of all types"¹³ although it is not exactly clear what this means. Bertrand's experience with KC-97's is mentioned specifically by John Fuller, who described Bertrand as "an Air Force veteran during the Korean war, with air-to-air refuelling experience on KC-97 tankers".¹⁴ But Bertrand talks about working "right on the ramp with the planes"¹⁵ suggesting perhaps that his experience was not of refuelling *by* KC-97s in the air but refuelling (and perhaps other maintenance) *of* KC-97s and "aircraft of all types" on the ground.

Howsoever, Bertrand's AF experience does count for something in this case, and it is not without irony that in order to support their thesis Nickell and McGaha are happy to rely on Bertrand's identification of a B-47 (presumably by its sound and/or lights) seen at altitude just after the sighting.¹⁶

All witnesses expressly rejected any possibility that what they saw was a high-altitude refuelling operation or indeed any other conventional aircraft activity. This is of course merely an opinion and is not surprising, given that reputations were at stake. But another factor to consider is the emotional impact revealed in the witnesses' actions at the time, such as a civilian presenting at a police station in a state of distress and dishevelment after diving into a ditch, or a police officer running for cover in a patrol car and reaching for a weapon. Some writers clearly find these details very convincing. What weight should we give to them?

Muscarello arrived at the police station covered in mud and scratches as a result of having thrown himself to the ground to evade what he believed was a large and threatening object hovering over him. This is an impressive fact. Unfortunately, Muscarello's evident fear and alarm are only suggestive. Strictly speaking they prove nothing about what he saw, even if they do tell us something about what he thought he saw. It is relevant secondary evidence, but not strong primary evidence that would over-rule facts suggestive of a KC-97 for example (if there were such facts).

The uncomfortable truth is that witnesses to mundane phenomena have often had strong, even extreme psychological reactions. Examples can be found in the phrases used by witnesses in Alan Hendry's widely respected CUFOS study,¹⁷ where people describe being scared, crying, screaming, shaking, shouting, praying and running their cars off the road etc. because of sightings that were explained as advertising planes, stars, Venus and so forth.

Equally striking, perhaps, are details such as Officer Bertrand's description (given to writer Peter

<http://www.cybermodeler.com/aircraft/c-97/strat6.shtml>

13 Patrolmen Eugene Bertrand & David Hunt, letter to Maj. Quintanilla, Chief, Project Blue Book, Dec 2 1965 (ATIC file)

14 Fuller, J.G., *Incident at Exeter*, G.P.Putnams/Berkley, New York 1967 p.10

15 *ibid.* p.58

16 *ibid.* p.58 & p.62

17 Hendry, A., *The UFO Handbook*, Sphere, London 1980, p.99-100

Davenport¹⁸ in an interview a week after the event) of how the object appeared above the trees when their backs were turned, illuminating them and the whole field from behind with red light

"[H]e noticed that the shadows that were being cast ahead of the three witnesses were visibly getting shorter, so he knew that the object behind them was either rising, and/or getting closer to them. It was at that moment of panic that he whirled around to face the source of the light, during which time he moved to un-holster his sidearm. Seeing Bertrand act to draw his sidearm, Officer Hunt cautioned Bertrand not to brandish his weapon at the object, a recommendation that Bertrand consented to, and he returned the sidearm to its holster."¹⁹

This detail of the shortening shadows literally throws into vivid relief the witnesses' claim that the object bathed the surroundings with its red light. This is a good example of a very impressive circumstantial detail which, if completely reliable, would be of itself sufficient to exclude explanations of the high-altitude B-47 / KC-97 type as a class. But unless we are certain that this is a radical structural feature of the original accounts it would not seriously dent a case based on other facts suggestive of B-47 / KC-97 lighting (if there were such facts) because it can be argued that experience proves witness accounts of an exciting event to be often more colourful than the truth (were it known) would sanction, therefore it is not a proof.

The best qualitative defence against this type of counter-argument is always to go to the earliest available record in the witness's own written or spoken words, or the earliest signed statement. In this case the report forms in the file which were completed and signed by Bertrand and Hunt on Sept 11 1965 (the day after Davenport's interview) do not refer to any illumination of the surroundings at all. Neither do the short narrative witness statements in the file by Bertrand and Hunt (although Muscarello's statement which is restricted to his own single-witness initial sighting at 2:00 AM does mention that the lights "lighted up the area").²⁰ Other early sources such as newspaper articles, and John Fuller's account of a 'phone interview with Officer Bertrand on Sept 14, certainly do refer to the brightness of the lights colouring the field or buildings. Unfortunately an early primary source that records the vivid detail of the shortening shadows in Bertrand's or or Hunt's (or Muscarello's) own words has yet to be found.

This author personally finds it impressive that Bertrand gave this detail to Davenport within about a week of the event, and anyone in Davenport's situation hearing it from the officer's own lips no doubt would have been even more impressed. But it would be reassuring to have this striking observational detail consistently recorded in Bertrand's own original written words, and we don't have it. Moreover there is an apparent conflict between Davenport's account and Fuller's account of his own interviews (initially with Bertrand by 'phone and then in person with all witnesses a few weeks later).

Fuller quotes Bertrand as saying that "He [Muscarello] yelled, 'I see it! I see it!' I turned fast and looked up. He pointed near the trees over there . . . It was coming up behind them."²¹ And although Bertrand did reach for his sidearm at this time, he himself thought better of it before actually drawing the .38, and in any case Officer Hunt could not have advised Bertrand to reholster his sidearm, as reported by Davenport, since Hunt was not even present on the scene at this time according to what Bertrand told Fuller. Having seen the object rise over the trees and then

18 Now Director of the National UFO Reporting Centre hotline (NUFORC).

19 Davenport, P., UFO UpDates internet list post 05.04.2012

20 These statements are undated and it isn't certain when they were written or collected. The AF-style questionnaires in the file were evidently completed for Ray Fowler of NICAP. However a file memo by Maj. Quintanilla refers to "statements from the principal witnesses" forwarded from Pease AFB to BB on Sept 15 1965, so we may presume these are the statements collected during the initial investigation conducted by the Pease AFB Disaster Control Officer

21 Fuller, J.G., *Incident at Exeter*, G.P.Putnams/Berkley, New York 1967 p.60-61. See also p.11.

experienced his moment of panic, Bertrand returned to the patrol car and radioed the station for assistance, and it was in response to this call that Hunt arrived a little later. According to Bertrand it was while he was shouting on the radio that he noticed that the field and even the interior of the car were illuminated with red light, not when Muscarello yelled to draw his attention to it first rising over the trees.

Furthermore, according to Davenport

"The object hovered over a one of the houses nearby, exhibiting a peculiar pattern to its flashing lights. Officer Bertrand described to me in detail how four of the five lights on the near edge of the craft would be illuminated, while only one of the lights would be extinguished, and that the extinguished light would cycle back and forth along the near edge of the craft."²²

It is interesting that Bertrand described this in such detail, because it is frustratingly inconsistent with what the same officer wrote in his statement in the Air Force file. There he said the exact opposite. Instead of one light being off at a time he said that they "flashed on one at a time", matching Muscarello's claim on his own statement in the same BB file to the effect that "only one light would be on at a time. They were pulsating 12345 54321".

All of this confusion blunts the impact of vivid circumstantial details such as the creeping shadows and leaves the argument from psychological impact vulnerable to the criticism that Davenport's and/or Fuller's account(s) might not be completely reliable, or that Bertrand, like any of us in similar circumstances, might have felt the temptation to elaborate his memory a little in talking to Davenport. Of course there is no proof that this is so, but we know it is something that people do, and a determined sceptic can take refuge in this fact in order to claim that if one detail is doubtful then maybe others are too.²³

For example, did they really see the fields and buildings and car interior lit up with red light at all? Both Bertrand and Hunt reportedly described this strong detail to Fuller and Davenport and it is in the newspapers; but it is not recorded in their NICAP/AF report forms or their narrative accounts in the BB file; and we are now uneasily reminded of the fact that these are "soft" data, reported verbally after the fact in contexts that are not always completely unambiguous, and where witnesses may have an interest in justifying their reactions (to themselves and/or to others). This is why a sceptic could argue that such soft data, although vivid, would weigh little in the balance against other facts robustly suggestive of B-47 or KC-97 lighting (if there were such facts).

A similar limitation weakens the impact of several other striking descriptive details that seem at first sight to rule out conventional aircraft. For example, Davenport recalls:

"During my interview of Bertrand, he commented that the object occasionally moved so rapidly and abruptly that the human eye could not track it. It would drift slowly and silently for a short period of time, and then suddenly "jump" across the field and appear almost spontaneously in another location. Obviously, a KC-97 is not capable of such movement."²⁴

22 Davenport, P., UFO UpDates internet list post 05.04.2012

23 It is worth noting that the accounts of Bertrand and Hunt contain basic inconsistencies in reported object bearings and headings. Their report questionnaires give identical object bearings N of the road (matching Muscarello's account) and moving from NE to N (right to left), but Hunt's narrative has the object over a field SE of the road and departing SE. Hunt also gives the sighting location as 3 mi SW of Exeter (an error inherited by various other documents including the Pease AFB AFR 200-2 report form), but the true location at Kensington is if anything slightly E of due S of Exeter on Route 150. Subsequent accounts given to Fuller by both officers have the object moving left to right (E to W if N of the road) disappearing towards Hampton on the coast.

24 *Ibid.*

But this is an inadequate objection as it stands, since the human eye/brain combination *is* capable of suggesting the *impression* of erratic jumping motions even when the true motion is a steady linear translation, and experience shows that this is especially likely to occur with flashing light sources in a dark sky. Any investigator or any skywatcher who has ever tracked an aircraft strobe with the naked eye at night will know this illusion. It is not possible to sink this counter-objection merely with qualitative witness statements, because we know that witnesses *can* and *do* describe such illusory motions in a similar way when the object is a misidentified aircraft.

Again we can check Hendry's UFO Handbook,²⁵ case numbers 628, 788, 1109, 1144 involving identified advertising planes and Air National Guard planes. These planes "stopped", made "angles that an aircraft can't make", threatened to crash into trees, jumped "straight up", and in one case, identified as a formation of three Cessnas at 2,500 ft, the object seemed to "suddenly whip across the road over the woods".

This does not mean that Muscarello, Bertrand and Hunt saw a plane or planes, but it does mean that one cannot robustly argue that their reported impressions of erratic motion rule out the possibility. To start to do that one needs to go beyond words and impressions and extract some implied numbers to set physical limits.

Another factor adduced by Davenport, Fuller and other writers in support of the conclusion that this was a large, anomalous object witnessed at close quarters, is the fact that horses in a nearby corral became extremely agitated and noisy. Again this is striking and does seem to suggest that the object cannot possibly have been something as mundane as high-flying planes that would have been familiar over this area (given the proximity of Pease AFB) week in, week out. But again the argument is inconclusive because animal reactions have often been reported in UFO cases. To cite CUFOS's Hendry again for consistency, he illustrates this with ten UFO cases identified mainly as advertising planes and other aircraft plus a scintillating star or two, where witnesses said that the object caused noise and distress from animals including dogs, cows, chickens, cats and a parakeet.²⁶

Qualitative report data are often suggestive of high strangeness, but qualitative conclusions based on them are unlikely to be safe. The other side of this same coin is that Nickell's and McGaha's case for KC-97 tanker lights is weak because it relies only on qualitative witness statements which, if not looked at too closely, can be made to sound similar to aspects of some explanatory model. This is a very loose and lazy procedure. Like the compellingly vivid witness impressions relied upon by some UFO proponents, it impresses the type of person who is impressed by loose similarities and qualitative arguments and who sniffs at detailed quantitative and physically-based analysis.

We ought to try to do better. The conservative method is always to try to test a theory in its quantitative limits. When the quantitative implications of the Nickell & McGaha theory are thus tested it fails on the grounds of internal logical and physical implications so grossly inconsistent with the limits of human visual and auditory acuity that witness error becomes a negligible factor in comparison. The result is that the qualitative details such as those mentioned above may then become, arguably, more interesting. This type of approach pours the proper concrete foundations to take the weight of a case for or against a true 'unknown', whereas relying on qualitative witness impressions and opinions will never do this.

25 Hendry, A., *The UFO Handbook*, Sphere, London 1980, pp.93-96

26 *Ibid.* p.163

conclusion

Nickell and McGaha trumpet their claimed KC-97 solution without a hint of self-doubt but it has several radical problems making it a poor candidate. On the other hand there is tendency for UFO proponents to be dazzled by witness impressions and underestimate the allowances that may need to be made for human error in interpreting and recalling impressive experiences. There is clear evidence that some early witness recollections of locations and compass directions were incoherent.

It seems much more likely to this author that, *if* the UFO was caused by aircraft, the red flashers were rotating anticollision beacons or the like on a number of individual aircraft flying in formation at much greater distance, which would help explain the slow angular rate across the sky, and possibly the silence also. Several beacons rotating out of phase with a spin rate of a couple of seconds could possibly give the chance impression of flashing in sequence as described. And of course the angular separation of five planes flying abreast or in a left or right echelon could at least start to fit the reported and implied angular sizes.

But this takes us back to square one. BB ran into a brick wall attempting to prove this very theory. According to SAC all the Big Blast B-47s were accounted for some 30 minutes before the Muscarello sighting began. Even if the time discrepancy could be repaired so that the returning B-47s might be candidates to explain the Muscarello sighting, SAC said that by 0135 all B-47s were either landed or on final approach from the TACAN 320 radial 10 DME fix, i.e. the Tactical Air Navigation beacon fix located at 10 mi from Pease AFB runway (today Runway 34 of Portsmouth International Airport) on an azimuth of 320° magnetic. This would place the B-47s NW of Pease somewhere between about 10mi and 20mi from the sighting area (which is about 10 mi SSW of Pease; see Fig.5) and on a heading taking them on a shallow descending path left to right just a few degrees above the North horizon as seen from Kensington. Could this procession explain a slow-moving inclined line of red lights? Unlikely. The lights would already be low in the NNW sky at the start of the approach and would be increasingly obstructed by the local houses, farm buildings and trees N of the observer, and therefore could not account for red lights rising from the treeline and heading away to SE of Kensington as reported by Muscarello. Moreover the brilliant white landing lights of the approaching planes would probably swamp any red beacons that were visible.

The time reported by Muscarello would presumably have to have been in error by something in the region of an hour or more for him to have seen the last of the ten Big Blast B-47s flying nearby over Exeter, either during the end stages of the exercise itself or when in the traffic pattern before being recovered to Pease. Is it possible to lose an hour in the interstices of his stated movements after the event? Conceivably, although this isn't very comfortable given that he flagged down a passing car in a state of distress and was taken straight to the police station still in an evident state of dishevelment and distress. Perhaps he was disorientated by the sighting and wandered longer than he remembered before finding his lift? But then of course we come to the next sighting, co-witnessed also by officers Bertrand and Hunt, at approximately 0300, the time fixed by the police blotter and logged radio calls. The prospect of stretching Big Blast this far is essentially zero.

Yet could those five "additional" B-47s mentioned so tantalisingly in the BB file be the explanation we are looking for? The existence of this one-sentence comment referring to these planes is highly unsatisfactory. Its origin appears to be the original investigation report by Maj David Griffin, Pease AFB Disaster Control Officer, which includes the following comment:

At this time have been unable to arrive at a probable cause of this sighting. The three observers seem to be stable, reliable persons, especially the two patrolmen. I viewed the area

and found nothing in the area that could be the probable cause. Pease AFB had five B-47 aircraft flying in the area during this period, but do not believe they had any connection with the sighting.

But the only other reference in the file to this information occurs in an undated letter from Major Quintanilla to Bertrand and Hunt. From information in Bertrand's and Hunt's Dec 02 1965 letter evidently in reply we can conclude that Quintanilla's letter was dated in the third week of Nov 1965. Therein Quintanilla informs the officers - to their surprise given that Pentagon statements had been issued - that the investigation was still open because of the fatal timing problem with the Big Blast aircraft originally suspected. But "in addition there were five other B-47 type aircraft in the area during this period", says Quintanilla, explaining that it would be helpful if Bertrand and Hunt could confirm having seen these five aircraft as well as the UFO to help rule them out as a cause. But no document in the file defines what "this period" means, or explains how these "additional" aircraft are consistent with the file statement that "no aircraft can be placed in the area at 0200" (undated file summary) and the official conclusion transmitted to the Secretary of the Air Force Office of Information that because no aircraft could be found "the subsequent observation by Officers Bertrand and Russel [sic] occurring after 2:00 AM are regarded as UNIDENTIFIED".²⁷

Considering the way in which information emerged about Big Blast, the early Pease AFB statement referring to "five B-47 aircraft flying in the area during this period", is itself ambiguous. Note that the Pease statement itself does *not* say that these planes are "in addition" to aircraft involved in Big Blast (it does not mention Big Blast). That interpretation is Quintanilla's. The Pease AFB investigation result was submitted to BB already by Sept 15, but BB only found out about Big Blast later as a result of inquiries begun on Sept 28 according to a file memo. So it is quite possible that this early statement from Pease could be a preliminary reference to the aircraft believed initially by the Pease DCO to have been involved in Big Blast, later determined by BB's specific queries to SAC (16 and 19 Nov 1965) to have been ten in number.

Quintanilla may have reached the same understanding, which would explain why no reference to these so-called "additional" planes occurs in the file other than in his letter to Bertrand and Hunt. Perhaps he was hoping that they would incriminate themselves by claiming to have seen five extra planes that he knew were not there. But if Quintanilla was fishing, the officers did not bite. In reply they stuck to their story, referring again only to the one aircraft, "probably a B-47", seen passing at high altitude *after* the sighting, which they had already placed on the record weeks earlier, at least as early as their interview with John Fuller on Oct 20 1965.²⁸

Having failed to find evidence of a refuelling operation or special photographic mission of any type, BB was trying hard to nail the sighting, and it was immensely frustrating that SAC records showed all the Big Blast aircraft having landed about half an hour before the start of Muscarello's first sighting. One feels that had there been any chance of providing even slight *evidence* for the presence of five additional B-47s then BB would have closed the case without hesitation. Yet, with evident great reluctance, they left it "unidentified", on the specific grounds that they were unable to place culprit aircraft in the area. On this basis we should regard the reference to those five phantom B-47s as, at best, hopeful speculation and, at worst, a manipulative half-truth.

In summary, BB's conclusion is in the end the only reasonable one. There is insufficient hard evidence to prove the presence of something truly extraordinary, but what the three men saw remains unidentified.

²⁷ Maj. Quintanilla, WPAFB to USAF SAFOICC, Washington, Jan 11 1966 re Request for UFO Information

²⁸ Fuller, J.G., *Incident at Exeter*, G.P.Putnams/Berkley, New York 1967 p.58

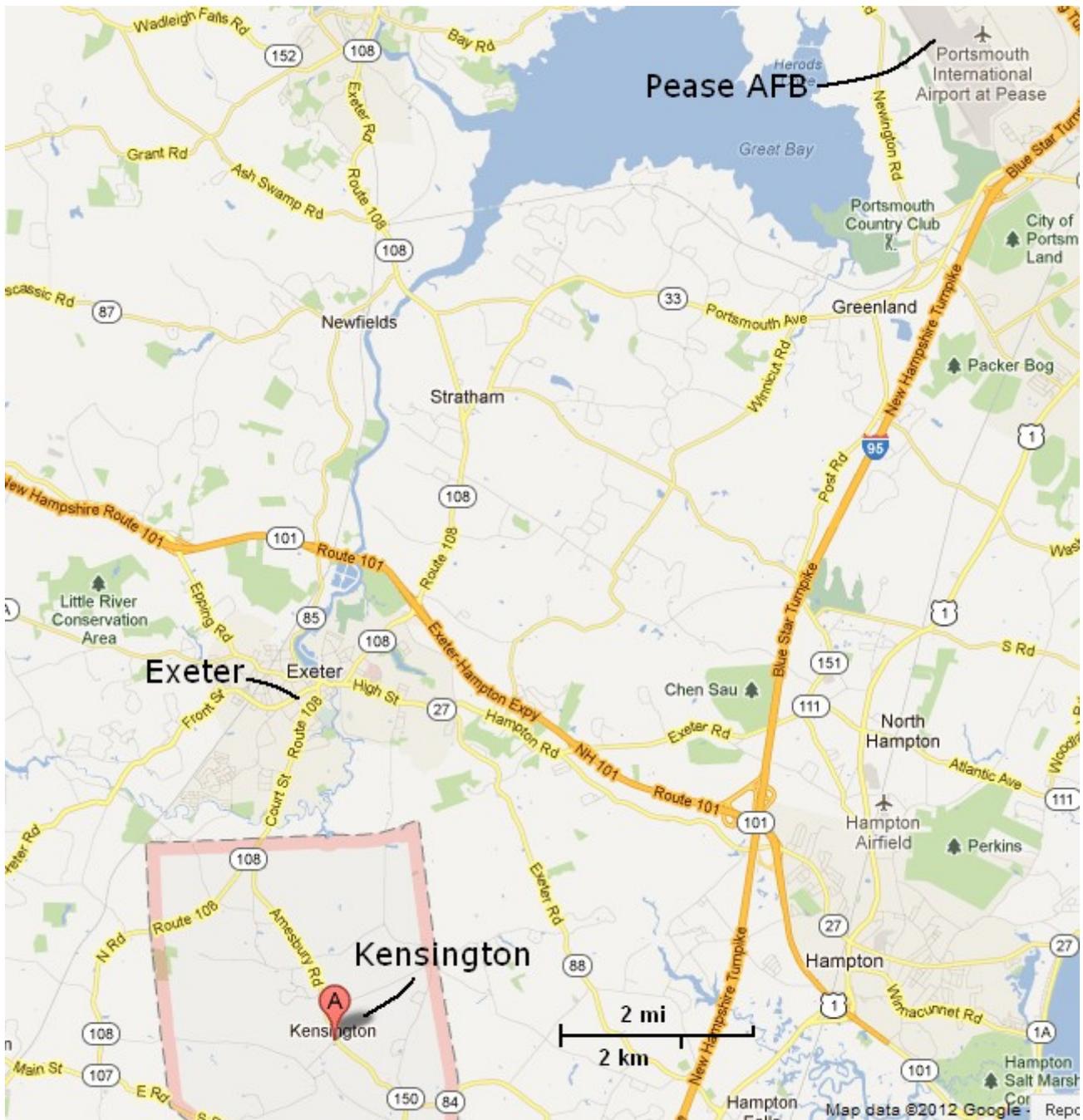


Fig.5 Map of the sighting location relative to Exeter and Pease AFB



Fig.6 KC-97 Stratotanker refuelling a B-47



Fig.7 KC-97 showing the boom in stowed position and the boom operator's pod. The receiver light or director light panel is just visible further forward below the wing root