FOTOCAT REPORT #5

SPHERES IN AIRBORNE UAP IMAGERY

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ABSTRACT

Objects or lights of possibly spherical appearance photographed and filmed from aircraft in the air have been sought from a massive databank on UAP reports recorded on film. Only 7 events have been considered for examination and these have been analyzed to the limit of the available information. The average level of information remains low, in spite of the authors' attempts to improve it, but 4 events allow reasonable mundane explanations. The remaining 3 are hardly evaluable and lack strangeness. In general, all images are highly ambiguous. The authors recommend that steps need to be taken to increase the professionalism of UAP inquiry.

RESUMEN

Objetos o luces de posible apariencia esférica, fotografiados o filmados desde aeronaves, se han buscado en el mayor banco de datos de informes de Fenómenos Aéreos No Identificados registrados en película. Sólo se han seleccionado 7 sucesos para su estudio y éstos se han analizado hasta el límite de la información disponible. El nivel medio de documentación permanece bajo, a pesar de los esfuerzos de los autores por mejorarlo, pero 4 casos muestran razonables explicaciones triviales. Los 3 restantes apenas son evaluables y carecen de extrañeza. En términos generales, todas las imágenes consideradas son altamente ambiguas. Los autores recomiendan que se tomen pasos para aumentar la profesionalidad de la investigación sobre estos fenómenos.

RÉSUMÉ

Les objets ou lumières apparemment sphériques photographiés ou filmés d'un aéronef en vol ont été recherchés dans une importante banque de données concernant les rapports de Phénomènes Aérospatiaux Non identifiés (PAN) photographiés ou filmés. Seulement 7 événements ont été retenus pour examen et ont été analysés en tenant compte de toute l'information disponible. Le niveau moyen d'information demeure bas, en dépit des efforts des auteurs pour l'améliorer, mais 4 événements admettent des explications banales raisonnables. Les 3 cas restant sont difficilement évaluables et manquent d'étrangeté. De façon générale, toutes les images sont très ambigues. Les auteurs recommandent que des mesures soient prises pour augmenter le professionnalisme de l'investigation des PAN.

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Introduction

FOTOCAT is presently the largest data warehouse for Unidentified Aerial Phenomenon (UAP) reports in the world where photograph, motion picture or video imagery has been obtained, with almost 10,000 entries collected up to the catalogue's cut-off date of December 31, 2005 (http://fotocat.blogspot.com/).

The tally for airborne cases shows 254 entries, which have been examined for the purpose of NARCAP's *Project Sphere*. The following elimination process described in **Table 1** was applied to the archive to determine how many cases are finally retained for analysis:

EXCLUSION CRITERIA	CASES ON RECORD	REMARKS
	254	Original catalogue of airborne events
IFO reports	- 113	Explained occurrences
Unseen by photographer	- 17	Most probably faulty images
World War II cases	- 14	Generally shapeless black blobs, 1941-1945
Undocumented events	- 53	Poor information and no image available
Not spherical UAPs	- 50	Do not adhere to standard shape
Total	7	Sample retained for presentation

***Table 1*. Selection process followed from database.**

In principle, barely 7 reports fulfill the requirements of being spherical UAPs photographed or filmed from the air for which the compiler (first author) has got an image of the object.

It is not guaranteed that these 7 events have been properly documented or that they represent true examples of unidentifiable phenomena. Rather they are presented to illustrate the type of photographic report UAP researchers receive from the public, or those which circulate in this medium.

Comments on the exclusion criteria follow. Cases that have been solved in a conventional manner comprise as many as 113 or 44% of the sample. Images in photographic emulsions, video recordings or digital media which were invisible to the eye of the

photographer were 17 (7%). Experience indicates a high probability for virtual, immaterial objects due to photographic failure, lens flares, etc. There are 14 photographs (6%) dating back to the Second World War, but these do not seem to stand as suitable enough for this paper. Lack of proper documentation, including absence of an image in the first author's archives, amount to 53 instances, or 21%. Within this set of reports several more potential 'sphere' events might be found in the future, when and if the occurrences are better investigated and documented. Finally, there exist 50 reports showing UAPs of shapes other than a sphere, or 20% of the total.

If readers of the present report believe they have information about any incident depicting any image of sphere-shaped UAPs, the authors would appreciate being notified.

Data Overview

Unlike many typical UAP sighting reports, photographic events have been poorly investigated. In some cases, the original information is scarce; the sources are difficult to follow-up; there is a marked absence of evaluation and technical analysis. It seems that UAP *aficionados* are content to publish a photograph in the literature (or, recently, just in the public internet) as though this should suffice to prove that an anomalous phenomenon exists.

Table 2 lists the 7 events saved for this presentation (dates are day-month-year).

Case #1	30031972	Pyrenees Mountains (Spain)
Case #2	07031973	Coronda, Santa Fe (Argentina)
Case #3	1996	New York City to Orlando (USA)
Case #4	17071997	Tehuantepeque Isthmus (Mexico)
Case #5	27041999	Pennsylvania airspace (USA)
Case #6	042004	Belize to San Pedro Sula (Honduras)
Case #7	09052004	Ireland

***Table 2*. List of cases selected for analysis.**

For the two episodes of the 1970s the picture format is a slide, for two others the original format is a print from an analog camera, and in the other three cases what we have are digital images taken directly from online sources. The internet medium, coupled with the fact

that images are often received at n^{th}-hand from their originator, reduces their credibility dramatically. In the considered examples, even the full name of the person who allegedly saw the anomalistic object in airspace and captured it on film is not known in 2 out of 7, and in one more instance there is reasonable doubt about it.

Reports come from two continents: 2 cases from Europe (Spain and Ireland) and 5 from America (2 North America and 3 Central and South America). Only one country (United States of America) contributes two cases, the remaining five belong to different nations.

Catalogue of Cases

Case #1
Date: March 30, 1972
Time: 09:00
Location: Pyrenees Mountains (Spain)
Cameraperson: Tom Pollack
Mode: Slide

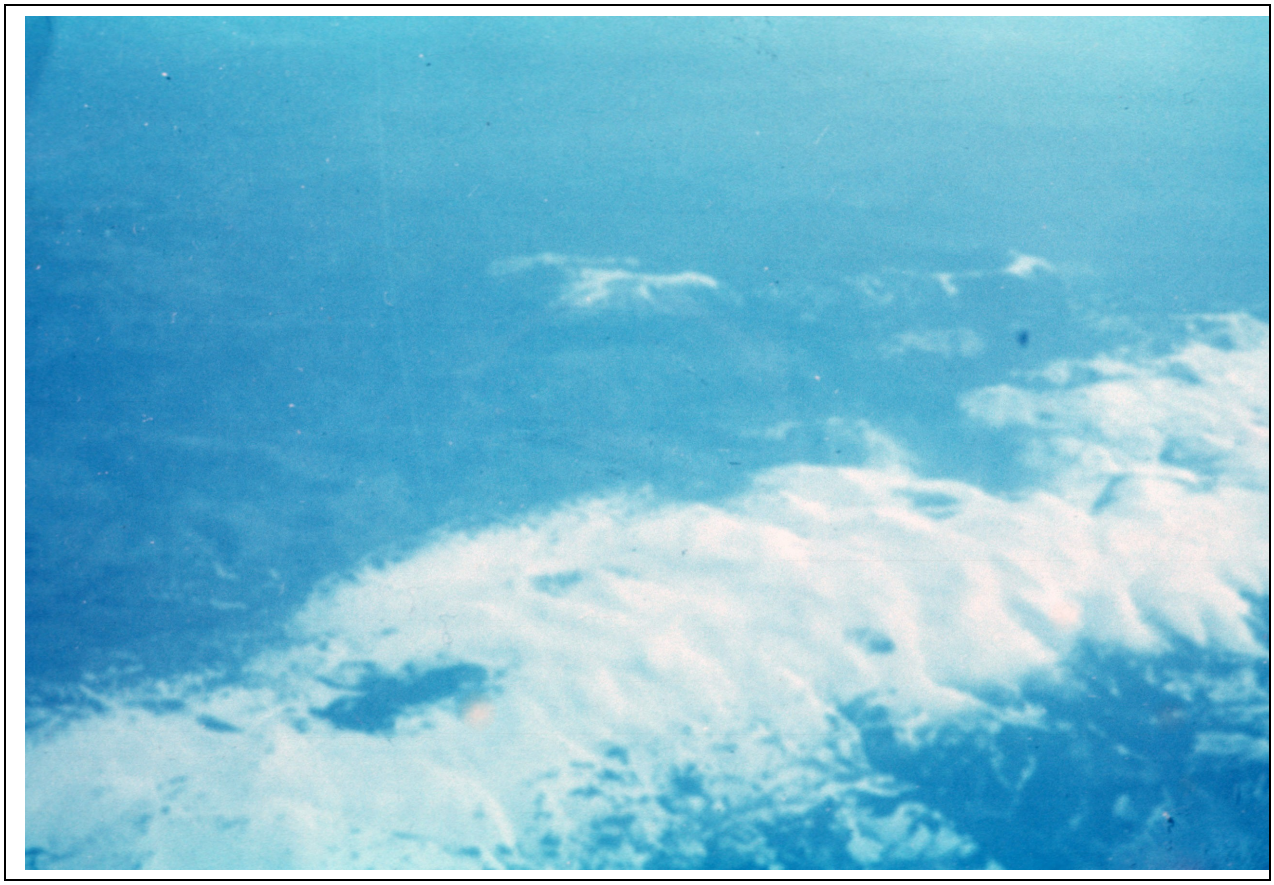

Figure 1. **March 30, 1972, over the Pyrenees (Spain).**
© T. Pollack.

Guillermo G. Roncoroni was one of the best ever UAP researchers in Argentina, one of the few and certainly the first to apply electronic computers to UAP investigation in that country, not for nothing was he employed by IBM in Buenos Aires. The first author developed a good working relationship with him from 1978. Roncoroni died in 1999.

One of the specialties of Roncoroni was the field of UAP photography, having written an interesting book on the subject **(1)**. When he died, his photographic files (normally, slides) were transferred to noted Argentinean researcher and journalist Alejandro Agostinelli, who several years ago was generous enough to donate Roncoroni´s collection of UAP slides to the FOTOCAT Project.

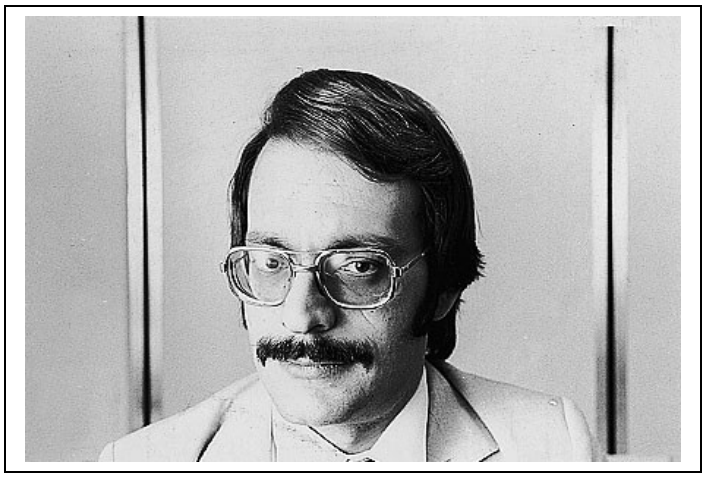

***Figure 2*. Guillermo Roncoroni (June 23,1951-March 18,1999).**
Credit: A. Agostinelli.

One of these transparencies was the one we study now. The only information to document the image is what is found in Roncoroni's "UFO Slides Catalogue", which for every entry it contains the date, the time, the location and the photographer's name. Nothing else.

The target here is a roughly round mark pictured from an aircraft flying over the Pyrenees, a large mountain range that separates France from Spain. The problem "object" (darker than the background blue sky) can be found in the portrait around the "one o'clock"

position (30º). Roncoroni's catalogue does note Spain as the country over flown at the time of the photography.

By rendering the target image in the slide at high contrast it reveals itself to be irregular in shape.

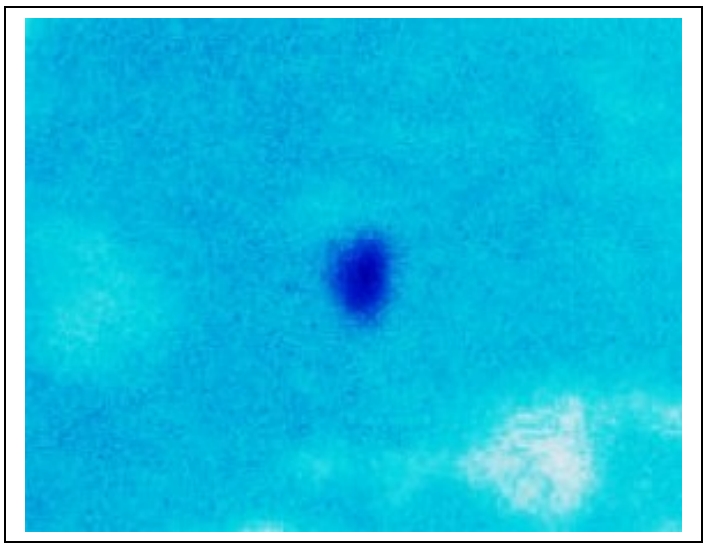

***Figure 3*. March 30, 1972, over the Pyrenees (Spain), contrast enhancement of possible UAP.**

We have reviewed the major UAP database in Spain **(2)** and did not discover any UAP observation reported in that region in that timeframe. Also, French colleagues have been queried and no one recognizes any UAP sighting on the French side of the Pyrenees. Therefore, it is not possible to correlate this picture with any other aerial phenomenon seen by any local witness.

We do not even know if the photographer saw something unusual to photograph, or simply found it after the picture was developed. The fact that the UAP is not centered in the frame seems to indicate that it was a scenic shot where the object appeared later. About all we can say with confidence is that at the plane's altitude (evidently several times the height of the Pyrenees, so probably >30,000 ft, or >9,000 m) it was definitely not an insect and highly unlikely to be a bird. Whether it is a development flaw, an out-of-focus speck on the window

glass, a floating balloon, or a true UAP, we cannot judge in the absence of a witness report. In truth it has the appearance of being a casual photo of nice scenery where something strange or unexpected has been noticed after processing.

Blessed with a total lack of information, we were even uncertain whether the white band in the picture was cloud or snow over mountain peaks. Opinions secured in a forum specialized in meteorology concluded that most of it is a bank of "daily clouds" formed by the evaporation and sublimation due to irradiation over the snowy surface below **(3)**. In fact an equalization of the original picture delineates in red the area of clouds, the rest being undulating snowy peaks.

***Figure 4*. Contrast-enhanced image. In red, clouds profile. Credit: F. Rodríguez Massoni.**

In the equalized photograph **(Fig.4)**, made to maximize the contrast of the image, we also discover what seem to be several photographic artifacts. Two yellowish-colored, globe-shaped translucent bodies are embedded into the white band of clouds. One is placed around

“ten o’clock” (left-hand side) and the other at “two o’clock” (right-hand side). There is another, dark red one below (SE) the second one. To us, these look very much like emulsion defects, or chemical staining. It would be funny if the true UAPs were these round, yellow-pink insubstantial-seeming “objects”, one of which is at the tag end (or prolongation) of a long curved line starting from the upper extreme of the frame, which seems just a scratch to us. These “mysteries” of the slide will probably never be resolved unless the photographer stands up.

Case #2
Date: March 7, 1973
Time: 15:20
Location: Coronda, Santa Fe (Argentina)
Cameraperson: Luis Hoffmann
Mode: Slide

Page 204 of a 1978 book in Spanish devoted to UAP photographs authored by Argentinean researcher Guillermo Roncoroni and consultant Gustavo Álvarez **(1)** contains a short but interesting account. Not really a sphere but an ovoid-shaped UAP, here included because it seems to us to be quite a *bona fide* document. Duly translated, this is the brief report published in the book:

“Luis Hoffmann obtained this photograph from his *Cessna C 130 (there seems to be no such model, though there are 120 and 140 and many others; just a slip by the witness?)* on March 7, 1973 at 15:20 hours while he was flying in route to the Buenos Aires airport. According to his narration, he was flying at some 1,500 ft (457 m) following the course of the Paraná river when, at the height of the town of Coronda, he sighted an ovoid object, white in color, moving to the west and, judging by the position of its shadow, very close to the ground. Luis Hoffmann was able to take two photographs of the object before it moved away at great speed into the Santa Fe province. The observation of pilot Hoffmann was corroborated by several witnesses from Diamante city, in the neighboring province of Entre Ríos, who several minutes before 15:30 hours affirm having sighted an object of similar features to the one

photographed, shifting towards the west. According to our calculations –*Roncoroni and Alvarez´s estimate*-, the object in question would have some 4 to 5 m long and 2 to 3 m diameter or thickness". So much for the available information.

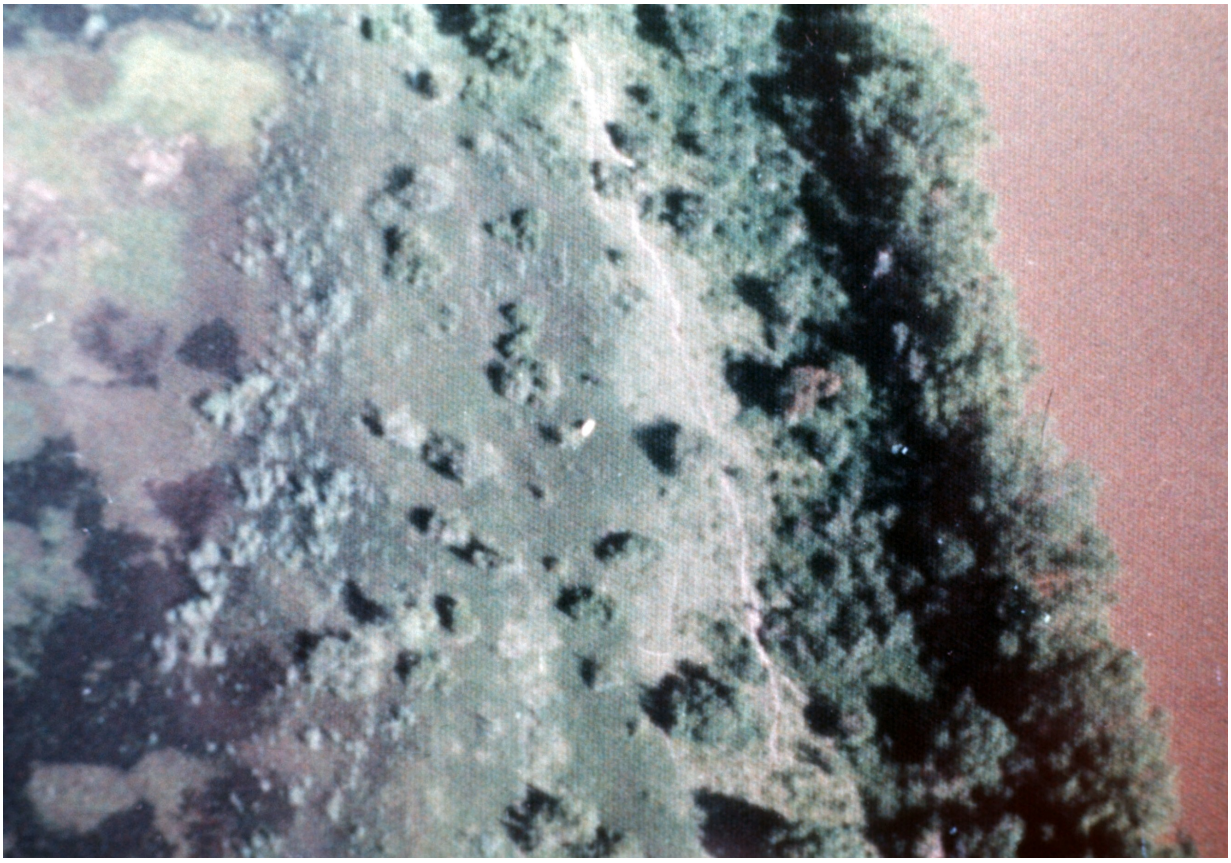

Figure 5. **March 7, 1973, over Coronda (Argentina). © Luis Hoffmann.**

The Buenos Aires airport of Ezeiza is located ~383 km southeast of Coronda, so 145º would be the average flight heading of the airplane, though with large deviations if it was 'following the course' of the twisting Paraná River. Coronda is a town located some 27.5 km west-northwest (~295º) of the city of Diamante that lies on the border of the provinces of Santa Fe and Entre Ríos. Any object flying west from Diamante would be approximately on the path toward Coronda. We have prepared a map to show the local geography.

Unfortunately, in spite of having contacted many colleagues from Argentina, no-one has been able to contribute any additional information on this case. Neither could we find any press clippings or any other information confirming the UAP sightings from Diamante city.

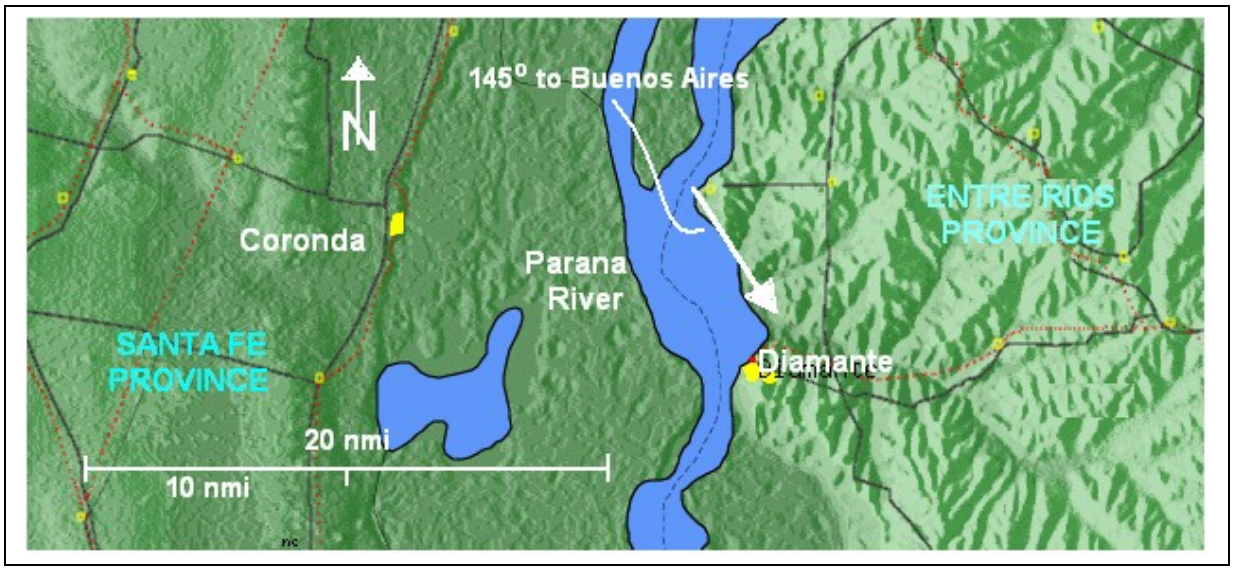

Figure 6. **Referenced locations of the sighting.**
(Adapted from http://www.fallingrain.com/world/AR/21/Coronda.html**)**

The tale issued by the book authors mentions a shadow seen on the terrain. Yes, there is a shadow which at first sight appears as though it might be cast by the white oblong blob in the picture, roughly in the right position considering the sun's azimuth at that time, but it could also be the shadow of a tree hidden by the blob.

The examination of the second photograph would eliminate our doubts, but only one photograph was published in the reference book. We have this in slide form from the collection of transparencies of Guillermo Roncoroni (see prior case) and we have not found any trace of picture number 2.

The Paraná river whose course the plane was following forms the east boundary of Santa Fe province. The broad smooth reddish area bordered by trees on the right of the photo is presumably the river water which often appears a muddy brown in satellite images (the color balance of the slide may also have been altered by deterioration of the emulsion dyes during

the 36 years since it was exposed). Thus if the plane is heading generally towards Buenos Aires along the Paraná River we would expect that what we are seeing is the east bank of the Paraná from a position just inside the neighboring province of Entre Ríos.

From a position ~32ºS 61ºW at 15:20 on March 7, 1973 the sun is at ~51º elevation and 306º azimuth, so that the direction of the shadows cast by the trees indicates that south should be at the top of the frame as we look at it, with Santa Fe province in the west on the right, beyond the river. These inferences are consistent with the report that the object flew away 'to the west...into the Santa Fe province'.

Roncoroni & Alvarez estimate a length of ~4.5 m for the major axis of the UAP assuming it to be a real object near the surface of the Earth. This figure is presumably based on an angular scale estimation. We do not have access to camera data that would permit a direct calculation of angular scale, but we can approximately check the internal consistency of this result.

From 457 m altitude a 4.5 m body near the surface not too far from the nadir subtends nearly 0.6º, which leads to an angular frame width of ~30º (a plausible value) and a linear FOV width on the ground of 225 m.

To the right of the frame can be seen a rough track winding among the trees, which looks too well-defined for a mere footpath and resembles a cart track or unmade road. Its true width can be scaled roughly by the nearby trees. These appear to be natural forestation whose spectrum of crown diameters therefore should have reached a stable equilibrium. The average spread of similar trees in a forested area of the east bank of the Paraná near Coronda today is shown in the satellite photo in **Fig.7** which is rendered at approximately the same linear scale. A forest track can be seen which varies in width between about 2 m and 3 m, and we estimate (crudely) that a typical crown spread of the maturer trees is in the region of 9 m.

This latter figure would be consistent with a rule of thumb that height is comparable to canopy diameter for trees with a decurrent branching habit (i.e., a spreading, rounded crown rather than a pyramidal one). The dominant tree in the riverine forest of the Paraná basin is *Tessaria integrifolia* or the "River Alder" which spreads vigorously on the sand banks **(4)** with heights ranging from 3 to 10 m according to an Argentinean Environmental Atlas **(5)** or from 5 to 9 m according to another source **(6)** interspersed with *Salix Humboldtiana,* a willow that rises from 13 to 15 m. These figures suggest a typical average canopy height of more than 8 m, consistent with the estimated mature diameter of 9 m estimated above.

Figure 7. **Typical forest area on the east bank of the Paraná River near Coronda today at approximately the same scale as the UAP photo in Fig.5. Southeast is at the top of the picture.**
© Google Earth.

Transferring this measurement to the comparable trees in the UAP photo we can see that the UAP dimension inferred by Roncoroni & Alvarez is entirely plausible. This scale implies that the forest track shown there in 1973 is perhaps 2 m wide, which also seems reasonable.

A further rough cross-check is available because the ratio of height to shadow length equals the natural tangent of the solar elevation angle. If the tree dimensions estimated above are correct then we judge that to a reasonable approximation the shadow of the tree to the right of the UAP probably indicates an elevation of ~45º±10º. This is consistent with the expected solar elevation of ~51º determined from date, time and map coordinates.

Finally, we note that the orientation of the major axis of the UAP is 40º-220º. If one assumes this axis to coincide with the direction of travel (this is to some degree an arbitrary assumption, but it would be the case for many types of object and might also be explained by motion blur; see below) then the direction of flight could be southwest across the river into Santa Fe, which can be interpreted as satisfying the general intent of the report.

There is a great deal of uncertain inference involved here, but nothing emerges that is inconsistent with the report details or that indicates unreliability in the presentation by Roncoroni & Alvarez.

The question remains: What might have caused the UAP to appear on the film?

Firstly we considered the possibility that the photo shows elongation due to motion-blurring of an object that was more nearly circular in plan (i.e., a spheroid). For example, if the object was a true sphere traveling near the ground then the "time exposure" shows (assuming the inferred angular scale) a displacement of approximately 2 m during the time the shutter was open. We have no information on the exposure setting, but we can bracket a range of typical exposures between (say) 1/50 and 1/500 sec to yield true object speeds between 100 and 1000 m/sec, or ~200 knots and ~2,000 knots respectively.

The upper end of this range can probably be ruled out because the rapid angular rate of ~130º/sec would make it very difficult to visually observe and deliberately centre the UAP even for one photo before it sped away, and there appears to be no appreciable blurring of the background terrain due to camera jitter. To capture two photos in these conditions (as reported) would be effectively impossible. On the other hand, an angular rate near the lower end of the range, ~13º/sec, could reasonably permit two photographs of an object traveling near the ground at ~200 knots.

This is relative to the frame of reference of the moving aircraft, of course, whose groundspeed is probably close to half this value. Since a significant component of the aircraft vector is also likely to be parallel to the UAP vector on this hypothesis we can crudely-speaking say that the UAP ground speed would be in the region of 400 knots.

Note that a longer exposure than 1/50 sec reduces the required object speed but becomes impractical in terms of sharp photography from a moving light aircraft. 1/25 sec would imply an object airspeed in the order of 100 knots and we should regard this as a lower limit for the above scenario.

Of course if the UAP were in fact only 100 m below the aircraft it might be a spheroid ~1 m in diameter and traveling at only ~20 knots (~40 km/h) relative to the frame of the aircraft. There is probably no calculable lower limit on this scenario. For an image in perfect focus a lower limit of size/speed would be reached when range from the camera reduces below the lens hyper focal distance. But in this case it is not clear whether or not the UAP image is in optical focus (optical blur is of course separate and distinct from the motion blur we have been speculating about). For example, glare from a very bright optical emitter or specular reflector might be obscuring the true shape of the object, or a spherical plasma might not have a well-defined optical surface.

These considerations also bring in the question of the claimed ground shadow. Given the elevation of the sun, our opinion is that the supposed UAP shadow is so close to the UAP that a 3-dimensional ovoid casting it would have to be virtually tight on the ground. Yet there is evidence that if this were an object in linear flight to W or SW as reported it could not be hugging the ground. The expected elevation of 51º is close to the elevation (45º) that would produce a shadow of the same length as the height of a vertical rod. Adopting this approximation we infer that the tree immediately abutting the UAP is in the region of 5 m tall, and clearly a UAP flying below this height in any direction near the reported one would be bound to impact the tree. Therefore the UAP altitude would have to be >5 m, but this is grossly inconsistent with the position of its supposed shadow.

Also the length and shape of the shadow does not seem quite right, and near the top right-hand end of the UAP it falls a little short of where it should lie considering the illumination angle (see **Fig.8**).

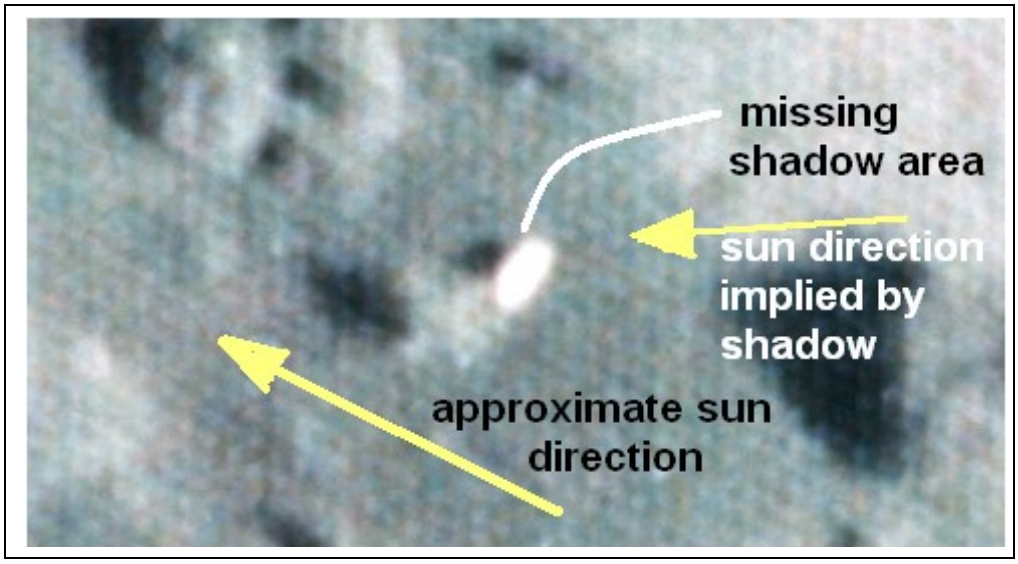

Figure 8. **Enlargement of the area of the UAP showing anomalous shadow geometry.**

The UAP appears very bright. Densitometry on the original slide would be useful to confirm this, but our impression is that the UAP is as bright as or brighter than the whitest areas elsewhere in the frame, which are parts of the forest footpath, presumably pale soil or

sand. This could be interpreted as indicating a true image of an object that is white or even luminous. Alternatively it might indicate an emulsion or processing defect.

Examination of a large digital file reveals a regular granular texture which is not a 35 mm emulsion grain but appears more like a halftone screen pattern (see **Fig.8)**. We wonder if the slide is a re-photograph of a print made by 4-colour litho or letterpress process. In this case the UAP could be an accidental artifact -or a deliberate one- introduced at several possible points during the original reproduction or secondary recopying stages and no meaningful discussion would be possible.

The implications of a likely developing failure would leave the photographer's testimony in a bad place, of course. Unfortunately, no-one else has any alternative or complementary report from the witness and the alleged second photograph has never been seen. These facts are not encouraging for any attempt to refute the reasoning above.

Case #3

Date: 1996 (no more precise date known)
Time: not known (daylight)
Location: Somewhere from New York City, New York to Orlando, Florida (United States of America)
Cameraperson: not known
Mode: Photograph (digital image from internet)

This image was found in the web site of Shadow Research, Inc., an organization said to exist since 1995, which staff is not identified by name except for an electronic mail address (admin@shadowresearch.com). The following postal address is provided: P.O.Box 88, Algonac, Missouri 48001, USA.

In the "Photographs" section of the site the picture below is placed with a single line information back-up, as follows: "The ...photograph shows a sphere off the wing of an aircraft on it's (*sic*) way to Orlando from New York. 1996". The image size is hardly 6.72 KB and a

grid has been superimposed on the picture for an unknown reason, probably to produce a better effect in the viewer.

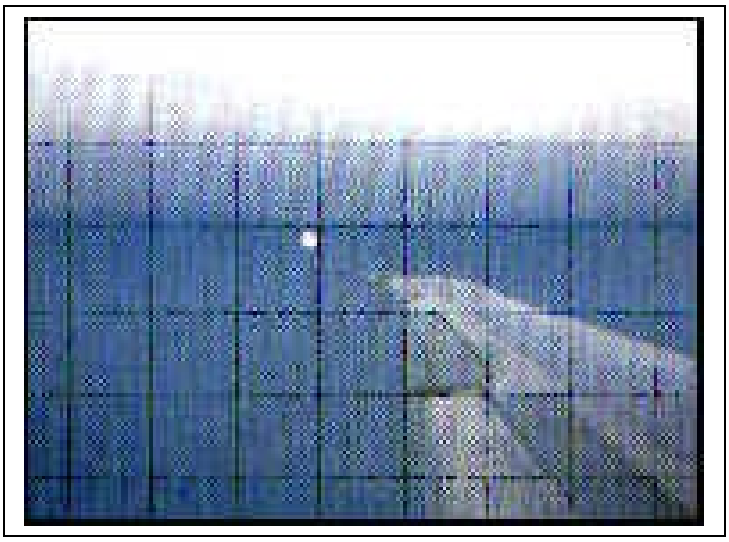

Figure 9. **1996, from New York to Orlando (USA).**

Even if the source describes it as a sphere, the dramatically low resolution of the photograph does not allow discerning the light's real shape.

Assuming the original image to be genuine, we can observe a dark edge about 2/3 of the way up the frame, just above the aircraft's wingtip, which could be the terrestrial horizon. The plane is said to have been en route from New York to Orlando, which would place the sea off the left wing of the aircraft. The visible control surfaces indicate that the wing shown is the plane's left wing, and the photo would appear to have been taken not by flight deck crew but from a passenger window behind the wing. The "horizon" looks level, and the dark surface below is featureless enough to be the sea, so this much is consistent.

However, whilst the caption claims that the UAP is a "sphere" there is no way to justify this claim. Enlarging the jpeg reveals no more than that the source is contained approximately within a square of 4x4 pixels and could have any real geometry. If the claim comes from a witness report then we have no information about it, and even so one would have to object that

discriminating sphericity from circularity in a distant light source is probably beyond the perceptual ability of the human eye.

Moreover the dark "sea" could also be tarmac with the aircraft at rest or taxiing, or even the top of a very smooth cloud deck such as a stratus layer. Given this uncertainty, the UAP could be a light (if it is really a "light") above a cloud deck, a light above the sea, a light on the sea surface, or a light on the ground. Clearly each of these possibilities invites several trivial explanations which are impossible to rule out, for example: aircraft landing lights; a lighted ship or oil rig; a light on an airfield.

One site **(7)** lists 18 carriers presently operating on NY-Orlando using a variety of aircraft. We selected two aircraft types likely to have been used in 1996, the relatively small *Dash-8* and the larger *Boeing 757*. Measuring the approximate wing-tip width from plan views and estimating the distance from cabin to wingtip gives two pairs of approximate values, 1 m at 12 m and 1.2 m at 16 m, which yield angular widths of about 4.5º and 5.0º respectively. These rough brackets are probably representative of a range of other aircraft wings. This leads to an angular diameter for the UAP image of approximately 0.8º to 0.9º, possibly approaching twice the apparent size of the moon.

But it isn't possible to say that this represents a true angular size because of unquantifiable factors -optical ones like glare and diffusion, and digital factors like pixel bleed and jpeg compression. The area of visual luminosity -if there was a visual- may have appeared much smaller, and the true size of the emitting object -if there was an object- may have been smaller still. Therefore extremely generous upper limits on possible size of a light source at arbitrary ranges of 50, 500 and 5,000 m would be about 0.7 m, 7 m and 70 m respectively, and correcting for the unknowns mentioned above could conceivably reduce these figures by as much as a factor 10. So this exercise suggests an angular diameter consistent with a wide range of hypotheses, including several of those mentioned above.

In short, there are several possible explanations and it isn't even possible to say with certainty that it *is* a true photograph, so poor is the quality.

We have contacted (early August 2009) the source requesting further information or any means to locate the photographer. But no response has been obtained.

Case #4
Date: July 17, 1997
Time: 11:00
Location: Over the Tehuantepeque Isthmus (Mexico)
Cameraperson: Gerardo Eduardo Mendoza Palacios
Mode: Photograph, analog (scanned picture)

Figure 10. **July 17, 1997, over the Tehuantepeque isthmus (Mexico), photograph #1. © G.E. Mendoza Palacios.**

There is a web site in Guatemala (http://www.siglo30.com/) which stands as the online support to the Spanish language radio program *Siglo XXX* (30th century), which has broadcast since 1973, according to the web page. The contact person is Mr. Gerardo Eduardo Mendoza Palacios who signs many of the site's texts and appears as general director of *Siglo XXX*. It was here that we found this photograph some time ago. Later on the link to it was lost during a web format readjustment, but we had already saved the images and the related brief information.

Figure 11. **Close-up of "object", photograph #1. © G.E. Mendoza Palacios.**

The short information initially provided by the source follows:

"This photograph was taken aboard a *Jumbo 747* commercial airplane. The dot attracted the attention of several passengers because it did not look like another airplane due to the intense light it produced, to the point that one of the members of the S.C. family *(see below, for real identity)* said: It was as if it was self-luminous and the light emanated from the very object".

The caption in the web page claimed that the blow-up shows it not to be round and besides that the digital camera flash was not used, to deny it was a reflection. The site also reported that when the image was inspected through the computer three or four luminous,

weaker dots were observed. The photograph was submitted to the web site by someone only identified as L.M. (Initials were used to hide the identities of witnesses).

The main picture shows the KLM logo of the Royal Dutch Airlines and the wing geometry, engines, winglet etc positively identify the aircraft as a *Boeing 747*. We have checked out that *Boeing 747* was the type of aircraft used by this company to fly South American routes **(8)**.

Once again in this case lacking the basic data needed for a proper analysis, a request was submitted to the source for additional information. A series of questions were raised and from received responses the following detailed narrative could be built.

The informant, Eduardo Mendoza (54 years of age), was on a flight from Guatemala City to Mexico, D.F., with his now ex-wife (O.S.C.) and her 17-year-old daughter (A.L.M.S.), this one being the main eyewitness. It was the youngster, sitting beside the window, who suddenly noticed some "lights or reflections" outside the cabin and alerted Mendoza. It was around 11 a.m., at the mid-point of the route between the international airports of La Aurora (Guatemala) and Beníto Juárez (México, D.F.) and the flight status screen informed them that the airplane was over flying the Isthmus of Tehuantepeque (Mexico), at an altitude of 36,000 ft (11,000 m). It was Mr. Mendoza himself who took two photographs, looking east, the first one showing the main light located at "four o'clock" as well as another showing big cumulus clouds and two other secondary white dots placed at "two o'clock", hard to distinguish in the reproduction. No flash was used, as can be confirmed by inspection of the border of the window pane, and the camera used was a domestic analog *Cannon*, with ASA 100 film. It had no zoom. The actual pictures were scanned for online usage. The photographer stated that he had misplaced the original negatives, "among many that I have".

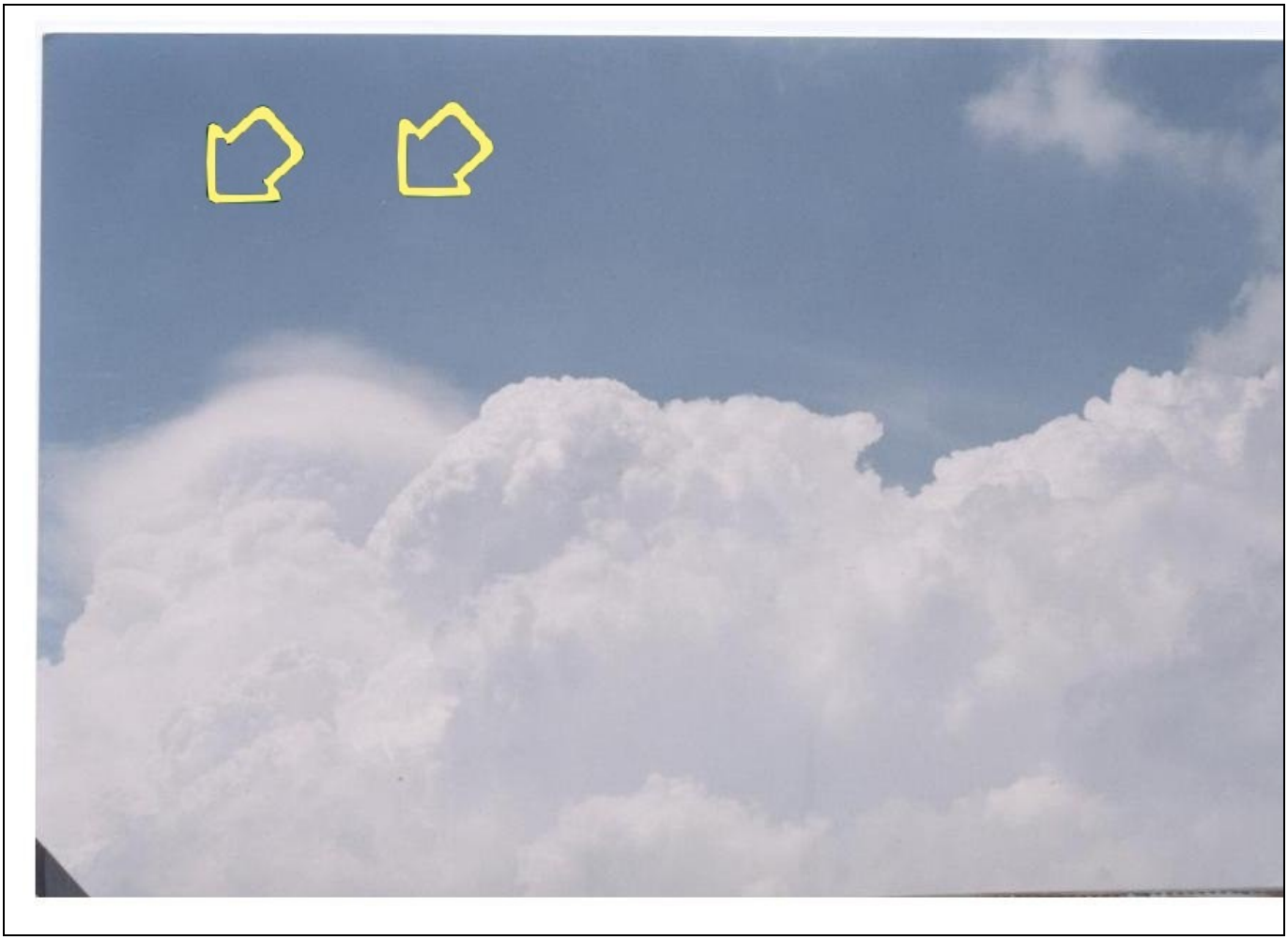

Figure 12. **Photograph #2 with arrows to show two tiny white dots above the clouds. © G.E. Mendoza Palacios.**

The duration of the sighting was around one minute, then the lights disappeared because of the changing position either of the airplane or of the clouds. The lights were apparently moving very slowly in an opposite direction to the aircraft course. The photographer's guess is that, because the lights were at an altitude "parallel to the airplane", these were not at sea level. He specifically commented: "I have traveled this route tens of times and I can identify (especially in the night) the gas exhausts from the oil rigs in the Gulf of Mexico" **(9).**

Figure 13. **Close-up and enhanced photograph #2.**

As these two UAPs are practically invisible to the naked eye in the reproduction (scanned from a print), we have produced **Fig. 13** with an enlarged (3x) and contrast-enhanced picture.

The sequence of events was as follows: the young girl (window seat) sees the main light "or reflection from something", she tells her parents and her father (sitting in the aisle seat) position himself to take the first photo **(Fig.10).** The mother was in the center seat (unsure if she saw it). Then the girl sees the pair of dim lights and Mr. Mendoza, again, takes the second photo **(Fig.12)**, without actually seeing the lights, hoping to be able to snap them successfully. Some 30 sec elapsed between one photo and the next. After taking the second photo the main light was not seen anymore: "The truth is that it did not last long before I could sit down again and my daughter got accommodated in her seat. We thought that in this lapse of time and due to the speed of the aircraft we had left the light behind the angle of the window", Mr. Mendoza told us. The three lights never were seen simultaneously. According to the girl (the principal visual witness), both the source visible in **Fig.10** and the two faint sources in

Fig.12 “were as they looked in the pictures”. In view of the difficulty of saying anything meaningful about the image in **Fig.12**, the following discussion focuses on the image of main light **(Fig.10).**

From plans of the *Boeing 747* **(10)** we measured the approximate distance from the camera position forward of the right hand wing to the winglet on the wingtip, which is 128 ft (40 m). The width of the winglet was measured at approximately 7.7 ft (2.4 m) at the root. The angular width of the winglet is therefore ~3.5º, enabling us to measure the angular diameter of the UAP as lying in the range 0.3º to 0.6º (it is not possible to identify a perfectly sharp edge), a diameter comparable to the full moon.

Enlargement shows that the source is correct to state that the UAP image is not quite perfectly circular.

The line of sight (LOS) to the UAP is rotated backwards from the camera position, at an angle close to 135º from the aircraft's forward centerline, and the FOV contains both the near and far edges of a window frame whose near edge is inside the lens hyper focal distance and significantly blurred. The angle of the LOS intercepts the plane of the window glass at ~45º. This rules out the possibility of a reflection from a LED status light on the camera (such lights are commonly red in any case) or from other sources close to the photographer.

However the angle of photography indicates that the window must be adjacent to a seat row behind the camera position. At the bottom center of the frame we find what appears to be a reflection in the window glass of a light-colored interior object partially overlapping the shadowed engine nacelle. We suspect other interior reflections higher in the image, merging with the clouds, reflections which are hard to identify but could be from light areas of the seat immediately behind the photographer or from the clothing of a passenger occupying this seat.

Considering the photograph in isolation from the personal testimony for the moment, this suggests the possibility that the "UAP" could also be a secondary window reflection from a nearby interior cabin source.

A possible primary source would be a specular reflection in, say, a spectacle lens, a camera lens or shiny jewellery. Inspection of the light and shadow on the window frame appears to confirm the correctness of the source's statement that no camera flash was used; therefore the obvious source of a specular reflection would be the sun. To investigate this we looked at the sun angle.

On the outboard engine pod we can clearly identify the shadow of the point on the wing leading edge where the pylon is attached (at the "hip" where the leading edge sweep changes by a couple of degrees). Dropping a line to the shadow indicates that the sun was high, at a zenith angle of approximately 40º (or strictly speaking at an elevation of 50º relative to the local horizontal defined by the fore-aft aircraft axis) and on a bearing roughly behind the plane, several degrees to starboard of the aircraft centerline. This latter angle may be larger than it appears to the eye because the outboard *747* engine pod is itself "toed-in" towards the centerline by about 2º. Nevertheless it seems unlikely that the sun would have been in a position to directly illuminate a specular reflector in the cabin position implied. Whether indirect scattered light from the clouds would be sufficient to cause such a reflection seems doubtful.

It remains possible, if not very probable, that it is a reflection of some other interior light source, such as an electric reading lamp or similar. But, in general, reflection theories are unattractive if the report information is trustworthy and if several people viewed the UAP with the naked eye at the time.

Turning then to other explanations, we determined above that the principal UAP **(Fig.10)** has approximately the angular diameter of the full moon. Could it be the moon,

perhaps blurred by a thin cirrus haze? The UAP appears almost circular, and the phase of the moon around the sighting date was very nearly full, 94%.

This seems unlikely for several reasons: the likely altitude of the sun suggests full daylight and the intrinsic brightness of the moon would be insufficient. Regardless of the true time of day, a nearly-full moon requires that the UAP should make an angle with the sun approaching 180º, yet the angle between the UAP and the sun determined from the shadow on the aircraft engine pod is only around 90º. And finally, if the reported date and location are approximately correct the moon is ruled out because the moon set a couple of hours before sunrise and remained below the Earth until early evening.

Venus can sometimes be seen in daylight when near maximum brightness, although around this date it was far from maximum brightness (magnitude -2.7). In this region it rose at about 9:30-10:00am local time in the ENE on the sighting date, and would have been low in the sky to the right of an aircraft heading NW from Guatemala into Mexico on the morning of July 17 1997, consistent with the photo. However Venus was only ~27º from the sun, and therefore is fairly conclusively ruled out by the shadow angle indicating that the UAP is nearly 90º away from the sun.

We note that the sun's bearing and high elevation is not inconsistent with cruise on a heading roughly NW during the morning in the summer at a low northern latitude, which would fit the journey reported from Guatemala to Mexico. From the reported location (11,000 m above the Isthmus of Tehuantepeque), the Bay of Campeche would lie to the right of the aircraft, and it is conceivable that it could be near enough -within perhaps a few tens of miles- for oil rig burn-off flares in the Bay to be visible **(11)**. The source notes that other fainter lights are visible on the original (though these are not very evident on the jpeg available), conceivably indicating a group of flares in this busy oilfield. This theory would imply that the

blue background is the ocean and that the plane is banking to the right, which in turn would strongly strengthen the inference from the shadow angle that this was a morning flight.

However, information provided by the photographer appears to rule this out. In response to other questions he indicated without being prompted that he was a frequent flyer on this route and was very familiar with the oil-field flares (at night, at least), adding that the photographed lights were in his opinion well above the sea horizon and appeared level with the aircraft.

Another, possibly more plausible, theory is that the photo shows the landing lights of another jet, heading almost directly towards the camera. Landing lights are very powerful and might be seen from miles away even in daylight. It might be objected that landing lights are only for night operation, but this is not the case. It seems there are differing conventions and few international regulations about this **(12)**, but many operators, pilots and aviation authorities in many countries make it standard practice to require landing lights during daylight to enhance visibility and reduce collision risk either when below a certain height (say 10,000 ft or 3,000 m), when within 10 miles (some 20 km) of a runway, when in any Terminal Maneuvering Area, when in reduced visibility, when in busy airspace *en route*, or in some cases all the time.

In summary, whilst this photo is not without potential interest it is impossible to evaluate confidently on the basis of the limited information available.

Case #5
Date: April 27, 1999
Time: not known (daylight)
Location: Pennsylvania airspace (United States of America)
Cameraperson: James Taylor
Mode: Video (digital image from internet)

As is well known today, *YouTube* is an awesome internet repository for all kind of images and movies. Yet unless you are very discerning, you may be deceived over and over

again, as everyone can anytime post any self-made film without any vetting for reliability. It is the ideal territory for hoaxes, fakes and wild claims.

Figure 14. **April 27, 1999, over Pennsylvania (USA), sequence 1. © J. Taylor.**

The UAP theme has been subject of many items in *You Tube*. The film we are currently reviewing comes from this source and there is no other non-online confirmation of the alleged facts, to the best of our knowledge.

A "John Foster" appears to be the editor of the entry on the www network and he is self-appointed "UFO chaser", a characterization that diminishes his credibility from the very start, as obviously the word chaser in this context suggests obsession. He also says he has managed to see and film UAP phenomena several times, which is a clear indication of (a) terrific luck, (b) outstanding vision, (c) eagerness for misinterpretation, or (d) propensity for faking. We leave the reader to assess the probability ratings for every option in this example.

Initially, we had retrieved this video clip from the following link: http://www.youtube.com/watch?v=vBdUnrz_3zY&NR=1 and in fact all the time estimates below were taken from this. Later on we found out that the original post to the internet was: http://video.google.com/videoplay?docid=-17512922075215274

Comments and "analysis" *(sic)* are credited to "Eyepod.org" and "Radiofreemind.org", filming is credited to a "James Taylor 1999", and production year was 2005. Eyepod.org, whose director is a Frank Riccardi (Director@Eyepod.org), is a typical web site based on alien beliefs (http://www.eyepod.org/), being the ultimate responsible of posting this video to the net.

The movie is prefaced by a written introduction, as follows: "The Pennsylvania Incident. Sequence one: craft *(sic)* appears then disappears. Sequence two: craft in the water. Sequence three: craft under the water". (In reality, there are four different UAP sequences in this film.)

Figure 15. **Close-up of "object" in sequence 1. © J. Taylor.**

Then a first clip is shown with the following text inserted: “Craft enters into visible spectrum, then exits. The ufos were not visible to the naked eye at this time. What you are seeing is an oscillating disc-shaped object”. The full video clip lasts 3:09 min, from 0:13 to 0:15 the film is presented in its actual speed, then up to 1:00 the film is shown repeatedly slowed down while a new superimposed text says: “its appearance is due to its highly reflective surface”. The background shows an interior country area with a large lake surrounded by forests.

For hardly 2 sec in real time you see a small bright ball moving upwards until it simply vanishes. The “body” deforms from round to flat. The image is then grossly zoomed (4x) and slowed down (3x) to increase the impact on the viewer. In the extreme magnifications, it shows two shades of black color in the upper and lower sides of the “object”. It does not differ from the appearance of a droplet on the exterior of the window pane.

Figure 16. **The “object” in sequence 2. © J. Taylor.**

Then there is a second sequence entitled “In the water...”, where an elliptical while blob emerges over a lake’s coastline scenery. Images in this sequence are viewed from 1:03 to 1:04, 1 second of real-time footage, followed (1:04 to 1:19) by 15 sec of an enlarged, slowed down image where you see a sphere capped in black in the upper and lower sides, displacing apparently linearly for an unknown real time, probably 5 sec maximum. In our view, the phenomenon is again not incompatible with the movement of a droplet on the window pane.

Figure 17. **Close-up of “object” in sequence 3. © J. Taylor.**

The third section of this clip is preceded by a text that reads: “And under the water... This negates any ‘plasma’ theory or military craft. It is not a balloon, bird or the planet Venus”. The writer tries to poke fun at the usual conventional explanations for most UAP sightings, convinced that the images have an unexplainable nature. In this new sequence, initially (1:34 to 1:37) you see 3 sec of non-enlarged images where nothing is obviously visible. Only in

magnified and repeated slow-motion footage of this time do we detect a vague, whitish body that seems to appear and dissipates in place (1:38 to 1:55). In this sequence we also see a (young?) person with a baseball cap between the recording individual and the window pane. The very ambiguous appearance of this short-lived and ghostly image allows a number of natural possibilities, including the one applied to the previous sequences.

Figure 18. **Close-up of "object" in sequence 4. © J. Taylor.**

Now we come to the last segment of a trip that was extremely rewarding in terms of anomalous observations from the airplane window. It is preceded by this inserted message: "The amazing *corkscrew* effect, one of the three crafts executes an unearthly maneuver". From time 2:04 to 2:07 we see ground terrain with two large lakes, one in the foreground and another in the background. Nothing out of the ordinary is perceptible. Then, starting from 2:08, the footage is enlarged and slowed down several times to show –in a position coincidental with an end of the lake in the foreground- what appears to be the upward movement of a translucent

globe. In still frames like **Fig.18**, extracted from the video, the “sphere” is extremely difficult to see because it is practically lost in the background pixel noise.

Film for this sequence finishes at 2:36. Again, the droplet hypothesis remains plausible for this last segment of video recording.

The remaining portion of the video clip (to 2:50) is merely a repetition of the first sequence. The rest (up to 3:09) are credit titles. The above was the sole non-visual information included in the video. The assumed date, location, cameraperson and producer are those registered on the clip.

We already commented on the good fortune of “James Taylor” in having filmed UAPs four separate times during one flight. In our opinion, the simplest natural explanation of a tiny drop of water adhering to the window plane would produce the filmed effects. It seems obvious to us that the cameraman is looking for any effects that, taken out of context, could persuade the layman that an unidentifiable aerial phenomenon has been filmed.

As far as the location is concerned, we have consulted a noted UAP researcher who lives in Pennsylvania and his comments were not very supportive to the footage: “I can't prove it, but I doubt this was actually taken over Pennsylvania. The terrain in this state is mostly hilly and not flat. I just spent an hour looking at Google Earth and can't see any place with the exception of the most extreme western parts of the state where it's flat like that, and there are very few areas that have multiple lakes together, as seems to be the case in this video. I have the feeling that it was actually taken somewhere in the Midwest US, where it's flatter, or possibly eastern Texas, someplace like that” **(13)**. Why someone would hoax a video in Texas and risk exposure by claiming that it was made in Pennsylvania must be left to speculation, but if the location is faked the odds are high that the whole video is a crude attempt to deceive UAP students.

We have written (early August 2009) to Eyepod.Org by requesting links to the names cited in the video in order to obtain additional information, with no response whatsoever.

Case #6
Date: April 2004
Time: not known (daylight)
Location: Somewhere between Belize-Puerto Barrios (Guatemala)- San Pedro Sula (Honduras)
Cameraperson: Mónica Monje
Mode: Photograph, analog (scanned picture)

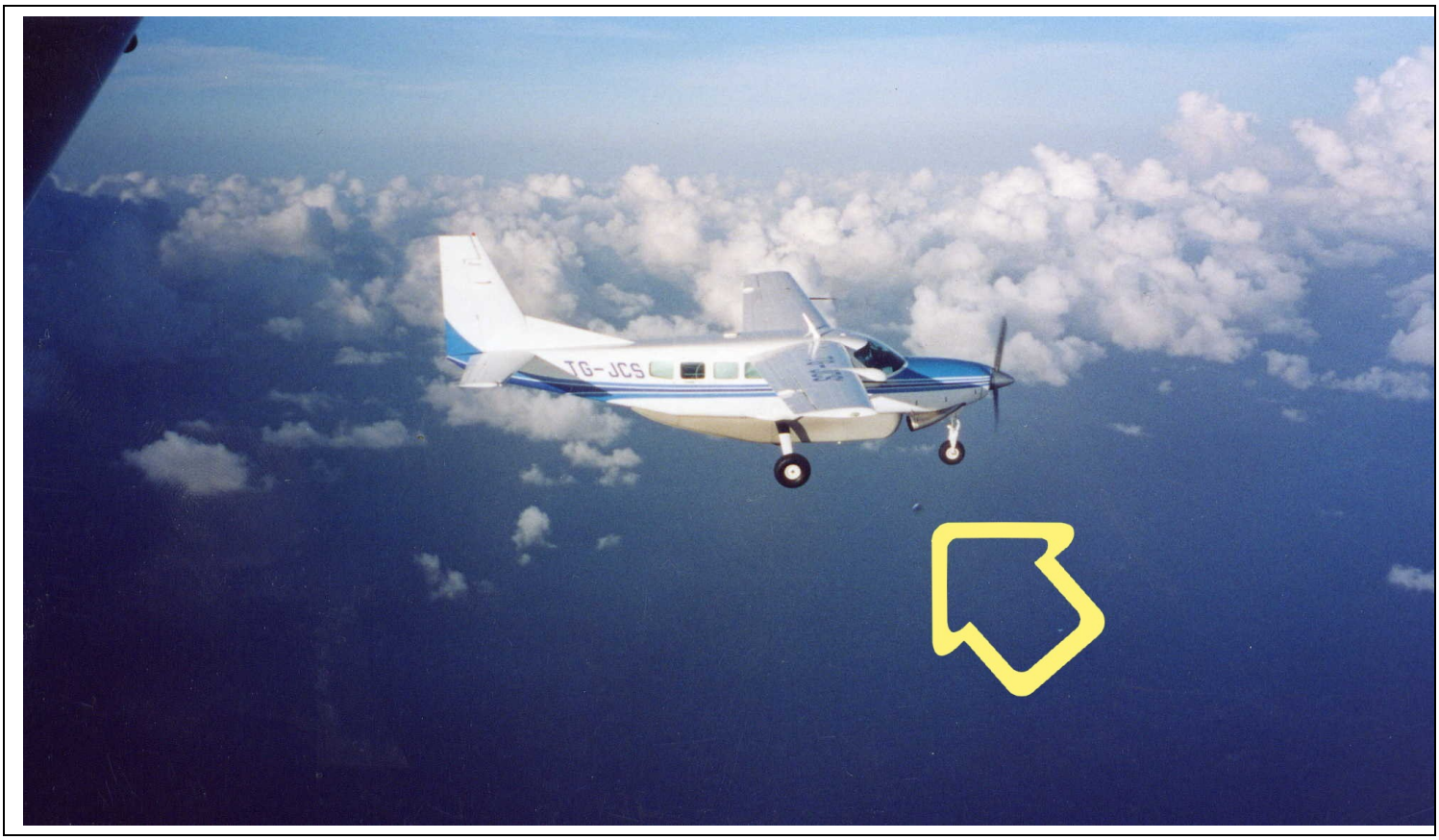

Figure 19. **April 2004, from Belize to San Pedro Sula (Honduras), first photograph. © M. Monje.**

In his regular online news chronicle, the Argentinean ufologist Guillermo Giménez published in 2006 a couple of UAP photographs taken from a small plane. The following caption -translated from Spanish- was accompanying the picture: "Two planes were flying from Belize to San Pedro Sula on July 17, 2001 (*sic*). Pilots (*were*) Fredy Koppy and Rudy Bermudes. One of the passengers was taking pictures of the colleagues in the second aircraft.

One object was following them by a stretch of the flight. In this photograph, it can be seen below the front of the airplane". (Belize, formerly British Honduras, is a country in the northeast of Central America bordered by Mexico to the north, Guatemala to the south and west, and the Caribbean Sea to the east. San Pedro Sula is the second biggest city in Honduras).

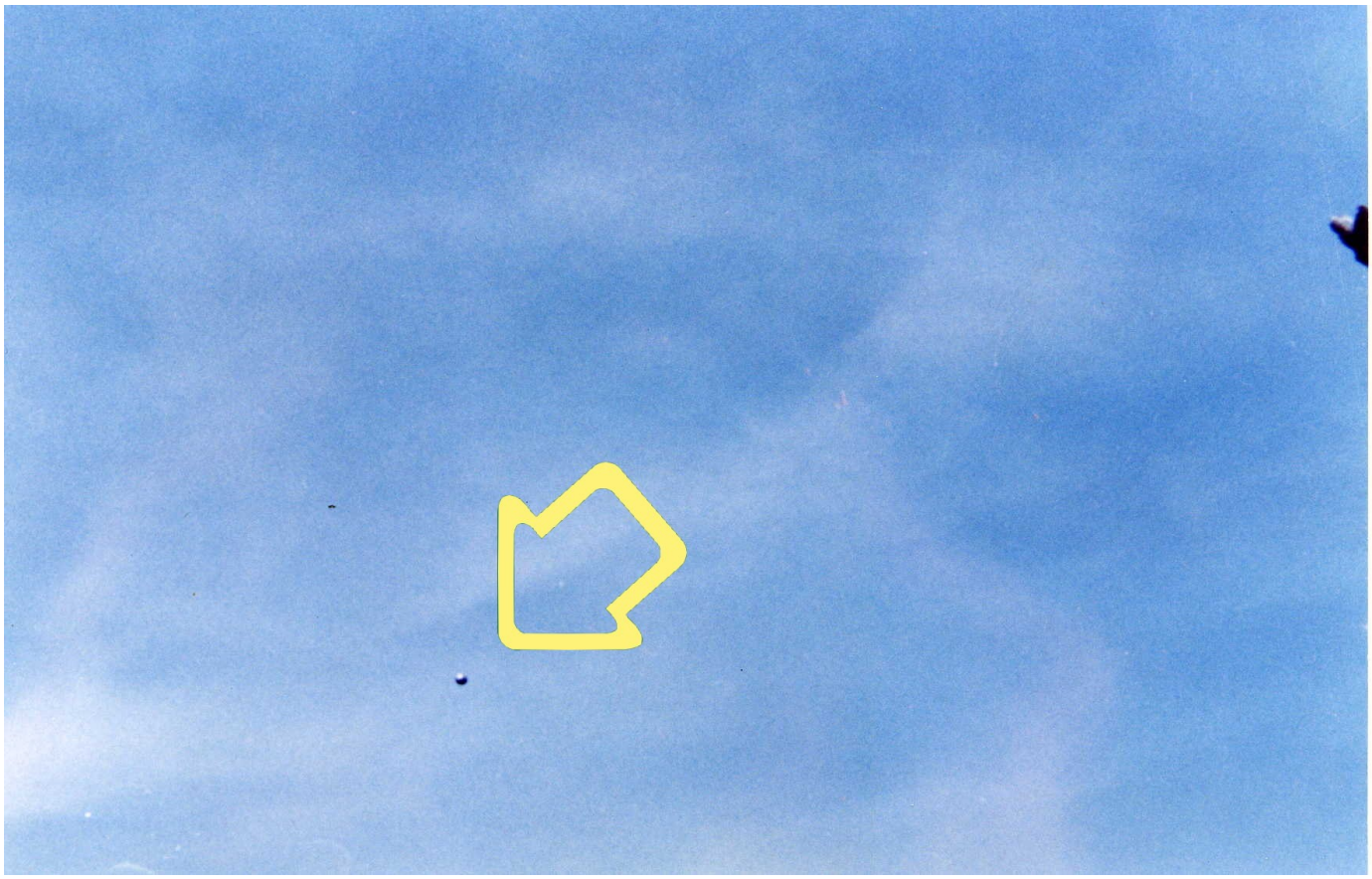

Figure 20. **April 2004, from Belize to San Pedro Sula (Honduras), second photograph. © M. Monje.**

The following information was then added: "During the flight several maneuvers were performed. *(In the second photograph)* the plane's propeller can be seen on the far right side. The object *(is)* lower than the flight horizon".

And a final caption reads: "Blow-up of the object of metallic and round features. You can see the sun's reflection on its surface".

This is the entire dossier reported. When we consulted Giménez, he answered he had copied the information from the *Siglo XXX* web site, but this was no longer there. In Case #4 we had already found another airborne UAP image (curiously also dated a July 17th of four years before) taken from the same source, managed by Eduardo Mendoza, and we contacted him once more for additional details.

The information Mendoza has kindly provided to us about this episode corrected some mistakes that either the web site or the previous informer had introduced, and he has presented us with a more comprehensive report (9).

Figure 21. **April 2004, from Belize to San Pedro Sula (Honduras), close-up of second photograph. © M. Monje.**

From a short note published by Mendoza in a magazine called *Enigma* he edited for 7 issues in 2009 (number 4, page 16) and from personal correspondence with the first author **(9)** we found out that the event took place in April 2004 when two planes owned by Transportes de Montaña, a private transportation charter company, carried two groups of executives from Belize to San Pedro Sula (Honduras), through Puerto Barrios (Guatemala). During the flight, Mrs. Mónica Monje, TV employee and then the wife of one of the pilots took 2 analog

photographs of the escort ship as there was a spherical object that moved hand in hand with the two planes. “When the photographs were developed the presence of the UAP was evidenced, located below the front fuselage”, the article said.

Thanks to the successful contact established with Mendoza to better document the photographs taken by his daughter (Case #4), we sent him a number of pertinent questions regarding these two pictures in order to collect additional data to work upon. This set of questions was to be submitted to the lady photographer, who luckly is working for a TV program directed by Mendoza himself and is thus closely available. However, communication has ceased since, our questions have not been answered and we are left with a very limited amount of data. For instance, we do not know if these photographs were taken at the same time or in different stages of the flight. We are not even aware if the photographer actually saw anything strange with her own eyes during the flight or if the round objects appeared later in the prints.

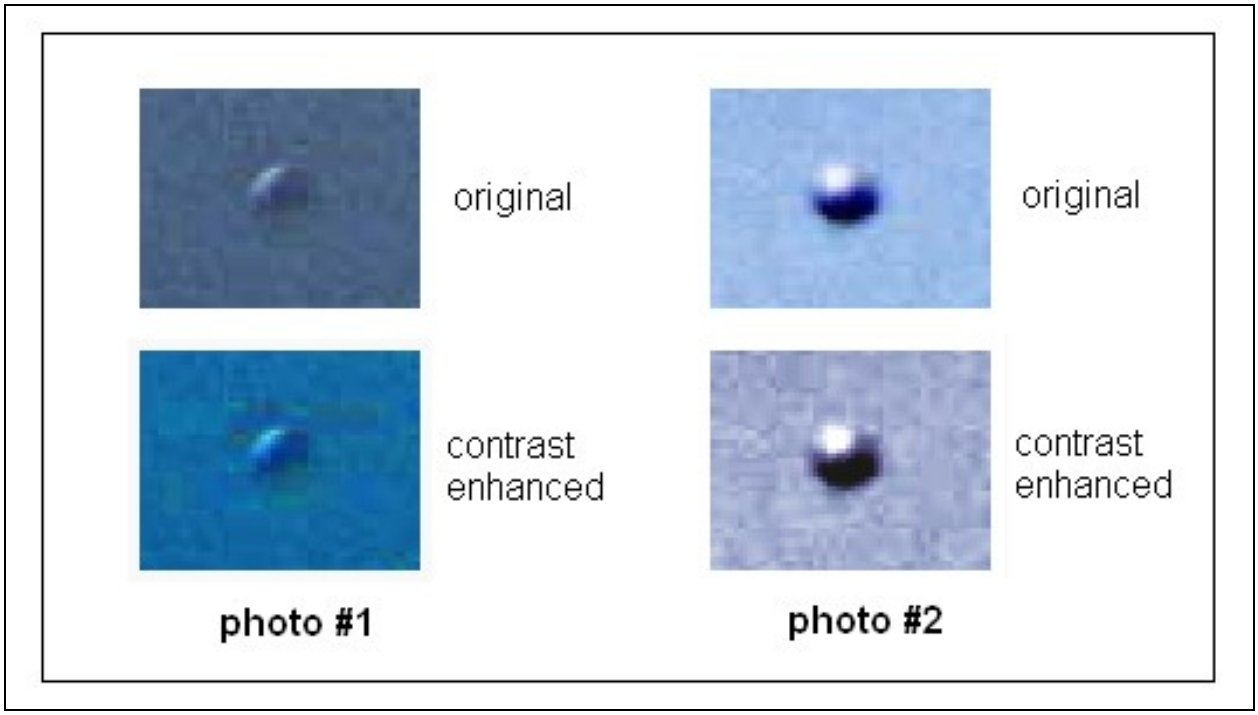

Figure 22. **April 2004, from Belize to San Pedro Sula (Honduras), close-up comparison of originals and contrast-enhanced versions.**

We have studied the two photographic stills and **Fig.22** shows a comparison of the first and second photographs.

Photograph #1 seems to show some structure around it, the shape appears more elongated. The radius of curvature of the highlight is too large for a sphere. It could be an approximate ellipsoid, but the highlight appears to be significantly less bright than the bright areas of the white-painted plane, so is probably not a specular reflection but a diffuse reflection from a light-colored surface. Could it be motion-blurred wings of a bird? The altitude is probably low enough.

Photograph #1 **(Fig.19)** is clearly centered on the body of the airplane as if it and only it was the focus for the attention of the photographer, not any anomalous object flying underneath. Absence of further photographs of the same "object" would suggest there was nothing uncommon to be seen.

Photograph #2 is possibly spherical, or else is a nearly end-on projection of an ellipsoid. The brightness and sharp-edged circularity of the highlight looks like a specular reflection of the sun. The surface could be metallic.

The only available print for photograph #2 **(Fig.20)** is a cropped, enlarged picture, which might indicate –again- that the apparently strange object was not the center of interest when the photo was taken.

Incidentally, we doubt that the object visible in the upper right corner can be "the plane's propeller", as claimed. All indications are that these two aircraft are single-engine light planes of the same or similar type, in which case the only part of the plane's propeller that could possibly intrude into the frame in this way would be a blade tip. But light and shade reveal an intricately shaped structure in reasonably good focus which does not resemble the tip of a propeller. Moreover it shows no apparent motion blur.

Examination of photograph #1 **(Fig.19)** shows that the other plane's propeller is considerably blurred by rotation during the exposure. The lighting conditions appear similar, and it seems unlikely that the photographer would have manually selected a much faster shutter speed between the two photos. Indeed we doubt that the unspecified "analog camera" could have provided the ultra-high shutter speed required to 'stop' a *Cessna* propeller so perfectly.

Fig.23 A detail of the alleged "propeller" from photo #2 (Fig.20).

The propeller of a light plane such as a *Cessna* runs typically at about 2,500 rpm and the blade tips trace a circle of diameter approximately 6 ft (1.8 m) whose circumference is ~5.6 m (18 ft). The rate of the blade tip is therefore such that even with a very fast shutter speed of 1/1,000 sec the blade tip would travel 23.5 cm (10") during the exposure, a distance clearly comparable to its own chord (breadth) or more, blurring its image very significantly - much as we see in photo #1 **(Fig.19)**. We therefore conclude that unless the engine has stalled, or unless the photographer was able to switch -between photos- to an extraordinary shutter speed in the order 1/10,000 sec, this unidentified object in photo #2 **(Fig.20)** is not part of a propeller blade, and indeed is not obviously any part of a light aircraft.

Without an answer to the questions posed to the photographer, the possibility exists that (1) these are two unrelated photos of different objects, and (2) the objects were not visually

observed at the time of taking the pictures, only to appear after development, which would leave the door open to a number of non-mysterious explanations.

Case #7
Date: May 9, 2004
Time: not known (daylight)
Location: Ireland
Cameraperson: not known
Mode: Photograph (digital image from internet)

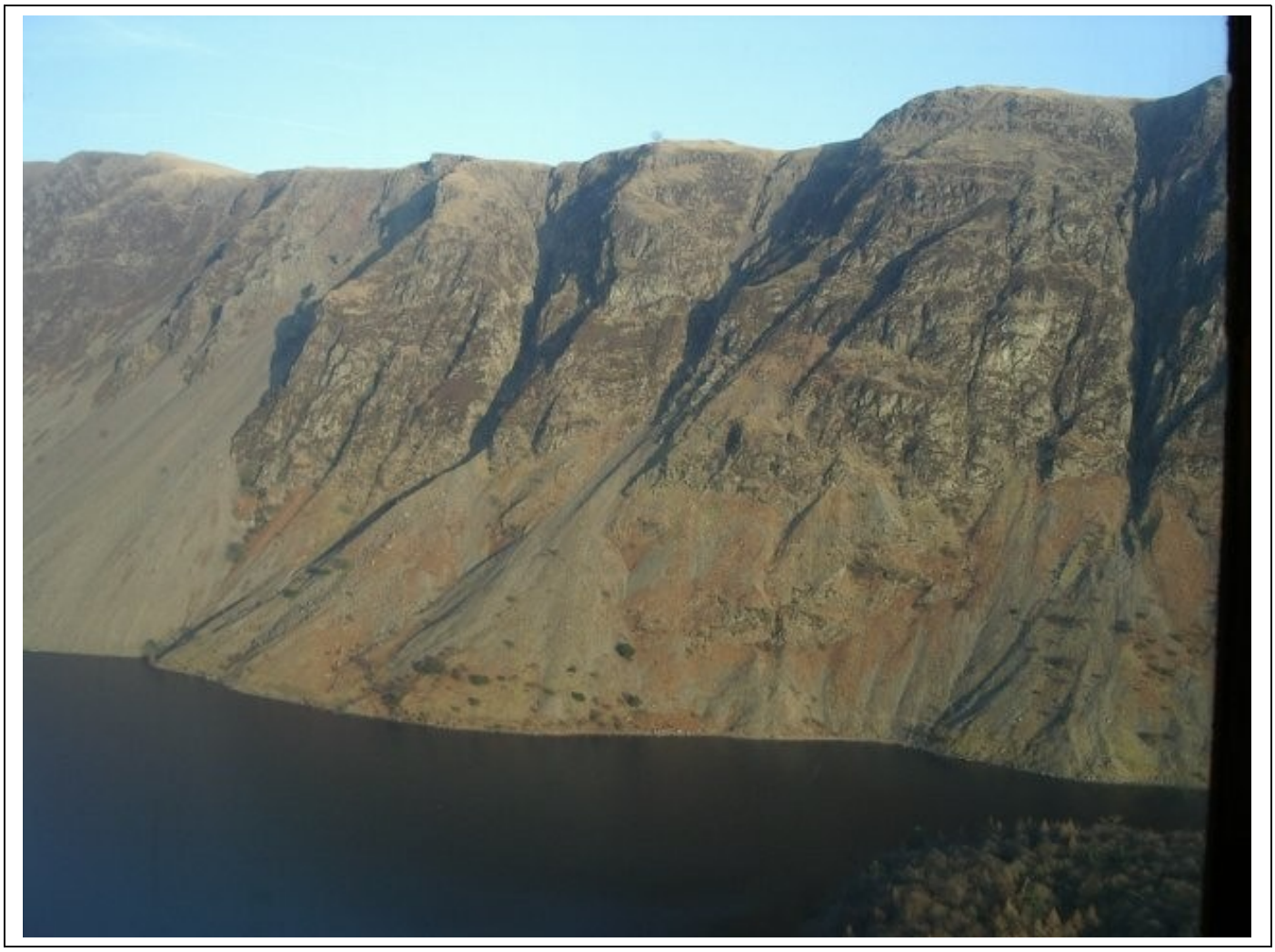

Figure 24. **May 9, 2004, over Ireland. Credit: S. Bernard.**

This photograph is included in the catalogue of 5,000 UAP photographs maintained by French ufologist Stéphane Bernard, an IBM employee based in Meudon. Besides the above basic data, all we have been able to collect is that an UK helicopter crew took this photograph

over Ireland, showing a “silver sphere”. In the picture, the object can be found near the “twelve o’clock” position (5º) of the frame just on the rim of the mountain, a cliff by a lake or pond, or even by the sea.

Source was unable to provide added information, and what we see is a perfect circular structure that seems to be attached to the ground, like what we would expect from a military or ATC radar installation, for example. Nothing indicates, without any report to the contrary, that this object was ever moving while the photo was snapped.

Is this a mere guess? Call it “researcher’s nose” or experience, but the resulting enhanced image (**Fig.25**) certainly supports the idea because we can see the “UAP” mounted on a base and fixed to the ground.

Figure 25. **May 9, 2004, Ireland, the object enlarged and enhanced.**

We have consulted Irish UAP students and organizations about their knowledge of any such UAP picture or any radar complex placed at the top of a mountain, e.g. the single radar domes located at Mount Gabriel (Skull, 110 km SW of Cork, Ireland), one of which is illustrated in the **Fig.26**, that could match the photographic perspective **(14)**.

At the time of writing we have been able to rule out Mount Gabriel but no positive information has been gathered to identify the location.

Having said that, our impression is that the scenery may not be Irish. What if the person who initially distributed this photograph planted misinformation about the country

where it was taken in order to mislead? Considering that we do not even have confirmation that there was any visual sighting, it is possible that this is a photo of a cliff-top radar installation in another country.

Figure 26. **Radar facility on Mount Gabriel (Ireland).© B'hob**

Summing-up

The first conclusion one reaches from the examination of UAP incidents is that they are amenable to scientific inquiry. The application of scientific principles and techniques from a number of disciplines (trigonometry, engineering, physics, astronomy, optics, avionics, etc) produces non-subjective data and measurements that assist the analyst in the process of evaluating both the reality of the event and the potential evidential value of the analog film or digital medium.

The second conclusion the researcher has to face is the scarcity of information actually available in most UAP claims. It is frustrating to realize how poorly amateurs perform in the field of data collection, mainly due to mediocre training or misguided motivations.

When this paper was in the data-selection phase, case choice was based on visual examination of the images, often tiny spots (particularly in the slides). In some cases images which the first author initially thought were round and thus potential spheroids, were revealed as not exactly round or spherical when digitally enlarged. But given the narrow sample finally selected, we decided to leave it as it is.

Photographs of alleged UAPs *per se* have limited value as evidence. Only when coupled with extensive witness declaration or investigation reports may the importance of the photographic document be upgraded. Without verifiable background information, the value of any photographs or footage is purely anecdotal.

In particular, we have devised **Table 3** to summarize our best options for the potential causes (best guess) that created the seemingly anomalous (UAP) images in the photographs and videos reviewed, the information grade we were able to handle (low-medium-high) and the level of response we got from the publishing sources of the data.

	MOST REASONABLE SOLUTION	INFO	SOURCE ASSISTANCE
Case #1	Probable development flaw	Low	not applicable
Case #2	Probable development flaw	Medium	not applicable
Case #3	Non-evaluable	Low	Not
Case #4	Non-evaluable	Medium	Yes
Case #5	Probable water droplets	Low	Not
Case #6	Non-evaluable	Low	Not
Case #7	Probable radar dome	Low	Not

***Table 3*. Tentative stimulus identification, level of available information and assistance received from source.**

4 events might resolve into discreet, conventional stimuli following a parsimonious approach. 3 events show highly ambiguous, low-strangeness phenomena that make the incidents clearly un-evaluable in scientific terms and there is a set of possible mundane explanations for them. The severe lack of information in such cases (partly related to non-

cooperativeness from publishing sources or witnesses) does not permit us to choose one for certain.

In conclusion, from a database of 10,000 reports of UAP photographs and within a subset of 254 air events, the authors have not found any evidence of any anomalistic image recorded by an airborne camera that unambiguously indicates a solid-appearing spherical object defying conventional explanations. Work on UAP imagery from airplanes continues by the first author and we hope to be able to follow up any significant events discovered in the near future.

Present-day science continues to discover new phenomena and processes in atmospheric physics, e.g. the new phenomenon of *sprites*, *elves* and *jets* that develop in high altitude regions of the Earth's atmosphere **(15)**. These are transient luminous events produced by intense lightning discharges over thunderclouds. The physical nature of UAPs remains to be clarified and even the mere existence of a proper phenomenon is heatedly debated today. But the possibility of short-lived energy phenomena -currently unrecognized by mainstream atmospheric physics- presenting a potential risk to air navigation may not be nil. There are some well-documented UAP reports suggesting this.

Notes and References

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