

CHAPTER 2

ANALYSIS METHODOLOGY

RELEVANT INFORMATION

1. In order to manipulate the available data and efficiently filter the known from the unknown (or incomplete) it was first necessary to identify key words and all known natural and man-made phenomena surrounding the topic. In so-doing the scope had, on the one hand, been carefully limited; but, on the other, it was essential to strive to capture as many **describable** attributes as possible to build an electronic database, so as to avoid the need for database re-design later on; should further investigations be found necessary. It was found that a considerable amount of relevant background information was obtained. While the tedious task of converting thousands of paper UAP reports into electronic form proceeded each of the key associated topics was researched and produced in the form of separate Point Papers which could be used as reference material during the subsequent manual and statistical analysis. An understanding of as many apparently associated familiar and unfamiliar aerial phenomena was considered to be an essential part of the methodology of analysis for the study. These are contained at Volume 2, which contains 25 Point Papers. For convenience here they are grouped into 7 main topic areas:

- **Man-made Air Vehicles** These are often mistakenly reported as UAP and those of appropriate shape or rarity to be reported as UAP are covered at Working Papers Nos 9, 14, 15 & 17.
- **Meteorological & Atmospheric Phenomena** These important factors are covered at Working Papers Nos 2, 13, 18, 19, 20, 23 & 24 and are fundamental to understanding the UAP events. One of the more important findings is that of a 'total absorption' optical phenomena, which can exist in the space between charged buoyant bodies, giving the appearance of an airborne shape (for example, a 'shape' which is a visual triangular void, between 3 such charged bodies and from which no light is reflected). The findings on buoyant plasmas are of particular significance.
- **Reported Effects on Humans** Papers 1, 4 & 25. In the course of research (and on the assumption that some sort of field in addition to the (visible) electromagnetic emissions may emanate from a UAP), a brief investigation was made into medical effects of fields upon humans. The search for relevant information went beyond UK sources and an important and very relevant phenomena was reported in a Canadian medical journal which indicated that **certain magnetic field structures caused the human brain to respond in a very similar manner to that exhibited by 'close-encounter' UAP witnesses.** This is explained at Paper 25. The presence of a 'field' near UAP, which affects humans, has been reported in Russia.
- **Celestial, Ionospheric & Terrestrial Phenomena** These aspects are reported at Papers 10, 12 & 16.
- **Sighted Shapes, Motions & Sounds** A compendium of typical UAP shapes is shown at Paper No 11. Motion and Sound are at Papers Nos 7 & 8, and at No 18.
- **Detection by Radar** This important topic is considered in general radar terms at Point Paper No 5 and specifically in the context of the current UKADR radars at Volume 3
- **Exotic Technologies** Paper No 6

(R)

2. At the start of an understanding of UAPs, simple man-made airborne objects such as aircraft, para-wings or balloons are often the explanation. The range of options then progresses through a set of other relatively easily explainable man-made, atmospheric and natural and unusual, propagation and atmospheric phenomena (some of which are still not fully understood). In addition there are hoaxes. The final level is that of the extreme possibility of extra-terrestrial objects under some sort of control. There is always the possibility that some, relatively rarely, reported events have a supernatural basis or are due to a mental condition of a witness. Nevertheless, a variety of key factors can be used to filter the explainable from the inexplicable. In the past often the latter conclusion was reached, due to a lack of information, which was probably available at the time, but not noted on the sighting form. Unfortunately, even if a follow up had been possible, by the time event reports are received the 'trail has gone cold'. Ideally, some experience and scientific background would be essential **at the time of an event** to elicit the type of information required - the key items which are required to make a rational and credible judgement on the cause of the event. As DIS5 are not permitted to make follow-up investigations after UAP events and not even to speak to witnesses to clarify the meaning of, (often cryptic or missing observations), analysis is dependent only on the paper report. (R)

3. Since it seems unlikely that all UAPs are reported (some researchers believe as many as 80-90% are **not** reported for a variety of reasons); the proportion of all types of events including those barely credible, are likely to be greater than received MOD sighting reports indicated at Figure 1-1. Some of the actual values are shown at Table 2-3. Unfortunately the great majority of UK Report Forms are incomplete or incompetently completed or are as vague as the typical example UAP report at Annex B. (R)

4. The spread of related science in attempting to find explanations for every object reported is significant, especially as this is an 'Air phenomenon' and which there are inevitably areas of atmospheric physics, optics, propagation, and atmospheric electrostatics and magnetics in which knowledge is known to be incomplete. Further, the study necessarily includes wider elements of physics, chemistry, aerodynamics, meteorology, psychology of perception, vision, geometry and human mental states. There is, at the beginning of such an investigation, even the possibility that some form of unknown field is an influence in how the unfamiliar object is formed, moves or disperses. A further understanding of some of these areas could well spell the end of the 'UFO' enigma. Sighting reports for the analysis are mainly drawn from the last 10 years, and in particular the last 5 years of a set of reports which are held back to 1968. (Previous reports having been destroyed and other related correspondence released to the PRO under the 30 Year Public Disclosure Rule). Various descriptions have been applied to UAP events by the media. These are ignored for the purposes of this analysis. Clearly a UAP is always something which is seen, apparently capable of 'flight' (in that it is the sky and on occasions it is seen on the surface) but which, although it may be proved otherwise, does not exhibit the expected characteristics familiar when viewing man-made vehicles. A UAP cannot be dismissed by the observer as irrelevant. Many of the public feel it their duty to make reports and they are very concerned that the authorities should be made aware of what they either believe they have seen or apparently seen. Often a report is made on the following day after some thought has been given. This means that a distortion of events can occur due to the time lag. Reports regularly show that witnesses are quite concerned about possible ridicule but they are equally adamant about what was seen.(R)

5. Many of the events are reported by trained observers, often members of the Armed Forces (both by Air and Ground Crews), Police or Coastguards or Civil Airline Pilots. Clearly one or more of the following occurs:

- The key stimulus is visual.

- A physical form is seen, which is then attributed a shape and/or colour, and sometimes a sound and, on rare occasions, even a smell.
- All attributes reported are subject to the witnesses own perception and interpretation.
- A visual picture is often 'seen', which may not necessarily equate with that 'seen' by another observer of the same phenomenon located nearby. This suggests that the 'picture' formed may have been mentally adjusted, possibly due to some other factor present at the time.
- A physical form may be reported as a result of a combination of what is actually seen with a pre-conceived or sub-conscious mental distortion (in the witness's own-cognition of the event).
- The object(s) is considered to be important, extraordinary and even frightening and a reported is made to the authorities because it might be a threat of some kind.
- Reports, exceptionally, may not be made or may be delayed, for fear of ridicule.

(R)

6. UAP Data is always inadequate. For example, within the department, there are no sound recordings to analyse, few still photographs (none close-up), some videotapes (none close-up), and no instrumented measurements. Inspection of (surface to air) photography has not revealed any useful evidence beyond that of explainable aerial objects and only a few memory sketches exist during the last 30 years of reporting. Any supposed UAP 'ground contact', (for which there are no photographs, only rough sketches) has been reported as 'leaving circular marks'. Also, on a few occasions there have been reports of depressions to rural surfaces and bending or other minor damage to hedgerows and at least one report of fire to some railway sleepers. Rarely have reports of animals being affected been received.

(R)

EXOTIC TECHNOLOGIES

7. Any investigation into exotic aerospace technologies goes beyond that of an examination of the UAP sighting reports. The aim of the study has been to thoroughly investigate any facts which might have a bearing on defence intelligence. Any extension of the research to attempt to 'fit' UAP report detail to potential technologies which could cause aerial devices to perform in hitherto exceptional profiles, must necessarily be limited. A strictly scientific line of approach has been taken, hence:

- Any research has been limited, based only on the available evidence and known science, so as to confirm or eliminate the possibility that some sort of aerial object(s) which **may (or may not) be a threat can enter and leave the UKADR, either undetected or detected but remain invulnerable to our current air defences. This has necessitated a brief study of related radar topics.**
- In an open scientific enquiry the likelihood of any unexpected, but nevertheless rationale finding, must be a possibility and no evidence has been disregarded.
- As no definitive scientific explanation (or even the most probable scientific probable explanation) of **has ever been given any UK report since the 1950s**, this study has provided an opportunity to encompass much more evidence that has hitherto been available.

- Initially, it could not be discounted that an extraordinary (even extra-terrestrial) finding **might** account for some events. It was also clear that to arrive at such finding, (given the exceptional attributes which some witnesses attributed to their aerial sightings), that this could only be the result of technologies which encompass scientific and engineering attributes which are well beyond even the far-term aspirations of any aerospace industry on earth. For example, attributes and abilities which allow a vehicle and any occupants to:
 - (a) Carry out inter-planetary or possibly inter-galaxy travel.
 - (b) Travel in the Earth's exo and high endo-atmosphere at hitherto impossibly high velocities compared with all current air vehicles, yet with the capability of 'hovering' and possibly of landing and taking off again.
 - (c) Move in the atmosphere with soundless or near-soundless motion, and in an aerodynamic manner which does not cause sonic-booms.
 - (d) Possess manoeuvre capability which is significantly beyond our current capability and which certainly appears to be beyond that which it is believed humans might withstand.
 - (e) Have a visual form which can be observed either by reflected light or by internally generated light from within and also appear to be opaque at times in contrast to the viewing background.
 - (f) Not necessarily be seen always by radar.
 - (g) Produce 'lights' which seem to have directionality (allegedly seen as 'portholes' or 'beams').
 - (h) Exhibit characteristics, on occasions, which have been described as 'intelligent'.
 - (j) Apparently emit some sort of invisible field, which, when in close proximity, can, reportedly cause humans and equipments to respond in unusual ways. At worst a close range exposure to a UAP can cause some disturbing mental and physical effects and cause electronics and electrics to temporarily malfunction.
- Finally, unless some unprecedented intelligence gaps have existed over many years, the possibility that the study finding would show that the presence of the unexplained proportion of UAP sightings is due entirely to man-made phenomenon, while not totally impossible, was clearly very unlikely. (R)

8. To attain the exceptional aerial performance, based on the reports studied, a UAP vehicle reportedly (but not always) often exhibits both propulsion and aerodynamic characteristics at or beyond the limit of current human design and engineering capability; leading to the certainty that, as a designed vehicle it would have to utilise, as a minimum, the following technologies:

- (a) Some type of **propellant field or thrust reaction** which can provide air-vehicle performance far beyond conventional rocket or turbine technology. Examples might be:
 - The use of anti-matter reactive-propulsion (see Working Paper No. 6).
 - An inertia-less body, which does not disturb the atmosphere acoustically.

- The use of terrestrial and space fields not totally understood: e.g. gravity fields, magnetic fields, electrostatic fields, torsion fields (or a combination of these) or even field types not yet discovered on earth.

Einstein and others believed these latter fields existed. (see Working Paper No. 6).

(b) **Materials and Structures** The properties of which appear to be exceptional. Velocities are reported which would require materials and construction which is beyond any known technology. In addition, they would require special cooling, shaping, layering/sandwiching which we do not currently possess (even if we had the capabilities to accelerate/propel/sustain at what appear to be phenomenal velocities).

(c) An understanding of **surface-plasmas**, charges etc. which allows aerodynamic vehicle drag to be minimised to an unprecedented level and which would also affect their radar echoing area..

(d) An advanced understanding of at least the following technologies either beyond the level understood on earth, or capable of developments and exotic applications of:

- Superconductivity
- Transmitted Power
- Gyroscopic-related phenomena
- Sensors
- Thermo-dynamics
- New information/communication channel.
- Other technologies not yet known.

(e) Be based on a sufficiently advanced understanding of earth science to be able to visit earth's atmosphere, enter and fly about and leave, either as individual vehicles; or, as reported, by merging into a larger 'mother' craft. A mother craft which, presumably, would also have to have at least the same attributes as (a) to (d) inclusive. If a UAP was assumed to be an advanced 'craft', implying intelligent control, then it might, conceptually, either be 'manned or unmanned'. Reports suggest (and note should be taken of the findings at Volume 2 Paper 25) that 'beings' are rarely reported as wearing special clothing or even helmets. At the very least a 'manned' craft would imply survivability during repeated exceptional accelerations, decelerations and manoeuvres. (R)

9. While there is no firm evidence that there is life of some form elsewhere in the universe - this does not mean that there is none - it may either be beyond our current sensor capability or may not be life as we know it. Other than the rare descriptions of 'beings' in or near UAP, which only occasionally occurs when a really close-up UAP event occurs, reports do not indicate that intelligent control is present. In fact, when near to the ground, (generally below ~5000ft) a UAP is often reported to make indecisive darting and bobbing motions. (U)

10. As this study proceeded certain data emerged which correlated unexplained aerial object phenomena with natural phenomena. Defence intelligence interests will not be furthered by continued investigations which focus on potential extra-terrestrial sources. (R)

UAP SIGHTING REPORTS

11. The raw material supporting UAP events is only in the form of paper reports, with very few UK photographs or video records. Analysis is therefore based on:

- **Documented Data** This is sometimes supported by photos, sketches, video, recordings, rare radar sightings which are always short-lived.
- **Corroborated Data** An examination of a series of reports apparently describing the same phenomenon from either the same witness reporting at time intervals or several witnesses in the locality.
- **Timely Sightings** Sightings to which reaction has been made. For example, rare events after which some form of Air Traffic Control follow-up has occurred, other sources questioned, etc. Liaison between radar sites is rare, especially because detections are rare and of short duration. (R)

12. It is considered that every scrap of information is essential, however irrelevant these may seem to the layman. Hence, the information analysed on the database is based only on pre-April 1997 reports, working backwards in time. Only reports deemed to be from 'credible witnesses' have been forwarded to DI55 since that date. As these are in isolation they cannot be corroborated or correlated as regards time, form or motion. By and large, reports originate from someone who has seen an unfamiliar object or phenomenon, or a familiar object in an unfamiliar situation. If numerical data is involved it is usually the case that reports are imprecise, of limited accuracy, often inadequately completed and by untrained observers. Angles and directions are approximate. Late reports are undoubtedly embellished after the events and self delusion, falsification of facts or even deliberate hoaxes have been known. Stories grow in the re-telling, particularly in the popular media. Nevertheless, MOD has continued to treat the subject seriously. Despite the fact that the paucity of UK data compares unfavourably with the quality of witness reports which US scientists have examined - each US (openly published) report being nine pages long - the US Government do not appear to have resulted in any authoritative conclusions. Pressed for a comment, rather than a proper investigation in 1967, an internal UK intelligence reply on file, since released to the public, stated that UFO reports (as they were then known), following "an examination of the evidence" had resulted in the conclusion that the 'unknown' sightings pointed to

- Activity under extra-terrestrial control, or:
- Clandestine activity, or:
- Activity for which scientific explanations have yet to be found. (R)

13. Unfortunately, to this day, there remains a persistent lack of scenarios where solid scientific measurement can be made either at or directly after an event. What is required to identify causes beyond doubt is evidence in the form of artefacts, field or radiation measurements, physical disturbance of terrain and close-up UAP imagery; especially multi-aspect imagery.(R)

14. While not necessarily possible during the time-scale it was realised that algorithms could probably be derived to automate the analysis so as to rapidly identify the clearly known from the unknown. Resources were not available for automation, neither was this considered necessary - unless later analysis showed this to be essential.(U)

UAP CLASSIFICATION

15. While it is not the intention to use information produced by the host of 'Ufologists', who regularly correspond with Sec AS, often requesting information, note is taken of a system of classification of types of alleged UAP incidents developed by researchers and used widely in The West. Apart from UAP sightings at longer ranges, UAP watchers have, naturally, been especially interested in those where humans have been relatively close to aerial objects as these have often produced the most bizarre of reports and human responses. These are (in popular media terms) known as 'close encounters' (CEs), which have been classified into 5 distinct 'kinds':

- CE1 Observation of an unknown object within a range of 500 feet.
- CE2 Trace evidence, e.g. on radar, or of a 'landing'.
- CE3 Observation of a 'creature'.
- CE4 Abduction.
- CE5 Responses from UAP to human stimuli (e.g. signal lights). (U)

16. No comment is made on CE3 or CE4 in this report, other than it is clear that some reports, from different parts of the world, seem to have similarities beyond the normal expectation of coincidence. An open mind was kept on these two topics, until the research summarised at Working Paper No 25 was uncovered and examined alongside typical UAP reports where CE3 and CE4 effects had been reported. Even for CE1 and CE2 there is the classic logic dilemma - 'if we don't know what these things are, how can we determine if they are a threat'? The UK reports, held in DI55, include a few where adverse physical effects were experienced by UK witnesses and where vehicle equipments have reportedly malfunctioned.(U)

LIGHTS AND SHAPES

17. In order to embrace all reported UAP shapes into the new database a very brief survey of some of the UAP imagery which is in the public domain from both within and outside the UKADR was made. The locations of the most frequent numbers of UAP sightings are shown on the World Map at Working Paper No. 3. It was important to be aware of non-UK reports, if only to recognise shape and colour similarities and keywords to be used in the database. For example, the selected Czech Republic list at Annex C goes back to the year 1607. It is noted that in these Czech examples:

- Descriptions are much the same and often identical to those reported today.
- Listings go back far beyond the days of all manned flight, lasers or satellites. Hence, none of these familiar objects of the 20th century could have caused the earlier reports shown.

(U)

18. Today, it is often claimed that some 25% of reports fall into the simple categories of ball lightning and optical distortions of the sun and moon. The majority of the others are clearly due to the

whole range of possibilities covered in the diverse working papers at Volume 2. Because 'lights' in the sky play such an important part in the sighting reports it is necessary to consider the precise meaning of what is seen in visual terms, this has a significant bearing on the interpretation placed on what is seen. First, the term 'lights in the sky' does not (unless it is a manned aircraft) mean 'lamps' in the normal sense of the word. A bright object is the most normal anomaly which first attracts the attention of a witness. Thereafter, it is mainly described as 'a light'. In practice, while this often distinguishes the object from the fact that 'a clear shape' cannot be seen, the object is often fuzzy or lacks focus or concentration and usually leads on to the statement that the object 'is round'. In fact a bright light may be obscuring the fact that the object is a completely different shape altogether. (U)

19. It is inevitable, therefore, that the great majority of statistical information will be based on reports that were first seen as 'round lights'. Further a circle of separate lights may be described as 'round', whether they are very close together or further apart - even when there is no apparent solid object in the centre of the ring. Similarly, three or four lights may be perceived, respectively, as a 'triangle' or 'rectangle', when there is no actual triangular or rectangular object present. [Due to physical phenomena it can be shown that there are conditions where, because of zero ambient light reflection, the intervening space between lights can appear to be filled with a solid shape.] A 'flashing light' does not necessarily mean a regular flash-rate or even that the flashing continued without a break. Often an object is described as 'glowing' when, in fact, it is very dimly lit but not a clear-cut shape. Sometimes 'a light', referring to the main object is said to project 'a beam'. In plasma terms this is a visible manifestation of charge-energy finding a discharge (i.e. leakage path). It is seen, therefore, that even the basic information obtained from almost every UAP sighting is a veritable minefield of inadequate data that can easily lead to misinterpretation when part of a statistical analysis. Further information is at Chapter 3. (U)

20. **Manual Interpretation of UAP Reports.** Sensing the presence of a UAP is almost always firstly visual, involving lights and shapes. Most of the known and unknown identifications can be shown and manually interpreted, in the first instance, in tabular form Tables 2 and 3, compiled as a result of initial investigations are intended as an adjunct to assist in the later interpretation of information gained from database analyses. However, there are many more attributes that must be included in the database tables, where known. It is assumed most hoax incidents will be perpetrated to represent the widely expected 'saucer-shape' spoof imagery/photograph or description. A compendium of imagery has been compiled at Volume 2 (Working Paper 18) as an aid to the identifying the most common shape categories, of which 'saucer shape' is only one. In fact the misnomer only came about because an early US pilot sighting described what he saw as 'like saucers skipping or bouncing across a pond'. It will be seen that a great number of events reported within the UKADR are of triangles, cigars and rectangles. (U)

21. For manual interpretation of a sighting Table 2-1 provides a frame of reference. This is the 'key' table but it is not intended to be a single reference table which can identify every sighting - rather a guide to the type of likely identification which must be backed up by further investigation using every scrap of evidence available. Unfortunately, it is the case that vital information - which could probably have been elicited from a witness by careful questioning cannot be included in many analyses. The Table is based on all known shape and colour attributes, as these are the most likely two keys which a witness reports. (U)

22. Having obtained a colour from an incident report and hopefully a reliable shape, a linkage made to other data to obtain the most likely identifiable cause. At this point other salient information (e.g. day or night, time, size, geometry, meteorology, motion and sound) can be checked and incorporated into

the decision. However, it is essential to cross-check against Table 2-2 before making a final decision 'explainable' or 'not explainable' (through lack of data), or 'inexplicable' (having considered significant data).(U)

23. Table 2-3 contains data usually attributed to those UAP events which have been impossible to categorise with certainty. While the format at Table 2-1 allows the cause to be identified, Table 2-2 (part 2) cannot identify the cause because these shapes, together with their reported colours cannot be attributed to definite air-objects. For example, if the desired shape with colour cannot be co-ordinated at Table 2-1 (e.g. there is no 'PINK DISC') then the attributes should be checked against Table 2-2. There, it is seen that silent, zero-to-fast-moving, silent pink discs are listed as unidentified objects. Green discs, it is noted, are not present on either table - since these have not been reported. However, green balls/spheres are often reported. (U)

24. There are several aspects of reporting where witness data, even from 'credible witnesses' may not be accurate. This must be considered when making judgements. For example:

- A sphere may be described in error as a disc or vice versa.
- A disc viewed other than in plan may often be described as a cigar, especially if it is viewed in silhouette and seen partly shadowed.
- A disc may be described as a cigar or a sphere or oval, depending on the aspect. Coloured lights, in a row from one aspect, may be described as a triangle, rectangle, diamond, or even a pentagon, when viewed in plan. For example, as all orientations are possible, the same diamond-shaped pattern of light centres, seen in plan by one observer can be described as a 'stack of coloured balls' by another; when it is vertically buoyant; while yet another, after it has rotated, sees it as a 'row of lights'.
- An aircraft may be described as a triangle (since some deltas are still flying) or as an aircraft because 3 lights are seen in a triangle (i.e. wing tips and tail).
- A helicopter may be described as a disc if an illuminated rotor path is seen, (usually this type of report can be separated by the distinctive noise, if reported).

(U)

25. **Further Identification** Likelihood is a strong factor in elimination of known from sightings which initially appear to be inexplicable. Key factors are geographical proximity to locations where, because of the inherent activity, aerial observations are likely to occur anyway:

- Airfields (Civil/military).
- Low-flying routes.
- Laser Displays.

- Thunderstorms.
- Possible reflections of light or shapes from water (e.g. lakes) or clouds.
- Marshy (swampy surfaces - methane burn off).
- Possible earthlight sources (e.g. rock formations/earth faults).
- Oil Rig flares.

(U)

Correlation of Incident Reports

26. Multiple witness reports, originating from the same location or adjacent locations, are a strong filter:

- They eliminate any mental illusions of a single witness.
- They enable independent multiple aspect viewing reports to be assessed.
- They enable confirmation of colour, shape, motion and noise.
- If spaced a few miles apart they can enable object velocity to be deduced and eliminate the reliance on, or provide confirmation of, witness velocity assessments.
- Multiple reports can provide up- wind and down-wind sound assessments as a help to identification.
- They can provide positive linkage between visual and radar (or other sensor) detection

(U).

ARTEFACTS & HUMAN EFFECTS IN THE UK

27. When the huge numbers of reports are considered as a whole, the lack of artefacts is a significant mystery - pointing away from the supposition of some UFO researchers who consider at least a proportion of the unexplained phenomena to be from an extra-terrestrial source (or sources). It seems beyond the realms of credibility, if UAP are 'vehicles', from whatever origin, that no one in the UK (or credibly in the wider world) has ever produced an artefact of proven non-terrestrial origin. This implies that the 'extra-terrestrial' entities have totally reliable, 'accident proof' systems extending over a period of thousands of years. One might speculate that the only exception to this situation would be if the capability of the perpetrators extended to total transportation and reconfigurability of matter (and beings) and the ability to remove all traces of failed matter/artefacts. The only examples of reliable

surface or human effects noted in the last 30 years, following a UAP incident in the UKADR and described in Department reports, are:

- Substance 'captured' in a jar (see Working Paper No. 22).
- Illness reported following an encounter in Wales.
- Disturbed bushes/hedgerows.
- Car radio inoperable, until UAP departed.

(U)

28. The lack of evidence of signalling in the form of electronics communications signals is also an enigma if extra-terrestrial entities are involved. Despite considerable attempts in serious scientific monitoring programmes over many years, no evidence has been found which can correlate with vehicular activity on earth. Either there is none or the 'entities' are communicating using a medium which we do not have or even understand, which seems unlikely, based on all the evidence and the emerging evidence reported in this study. (U)

COLOUR OBSERVED (BODY AND/OR LIGHTS)

Main Shapes (6)	Red	Yellow	Orange	White/ Silver	Blue	Green	Grey/Black ⁽¹⁾	Pink	Mixed Colours
Sphere or Spheres	A M E N L Q	A L R B M E Q	A M F L	E L F N Q	L N	M	F	A	A F B C
Disc	-	-	-	G Ls H	L	-	-	-	R
Cigar	D C	-	-	C H D	-	D C	C	-	D
Star/ Point	A	A	A	F J H K	J K	-	-	-	R
Oval	-	B	-	D H C G	L	-	C	-	R
Triangular Pyramidal Conical	-	-	-	E ⁽³⁾	-	-	-	-	-
Rectangle	-	-	-	-	-	-	-	-	-
Diamond	-	-	-	-	-	-	-	-	-

TABLE 2-1: RELATIONSHIP OF COLOUR AND SHAPE TO IDENTIFIABLE OBJECT TYPES

/KEY TO TABLE &
FOOTNOTES

KEY	CONDITIONS	CAUSE	DURATION	SIZE	MOTION	SOUND
A	Daytime	Ball or Bead (joined spheres) Lightning, Flares	Seconds to Minutes	Small	0 to Fast	^[8]
	Night	Moon Through Mist	Seconds to Minutes	Small	Nil	Nil
B	Daytime	Sun Dog	Minutes	Large	Nil	Nil
C	Daytime	Aircraft / Helos ^[2]				
	Night	Flashing and Steady Lights or Both	Seconds-Minutes	A/C Size	0 to Fast	Wind Dependent
D	Daytime	Airship (No Wings)	Minutes	Large	0 to Slow	"
	Night	Multiple Lights Airship				
E	Night	Birds (Reflective underbellies) seen as triangular formation	Seconds-Minutes	Smaller Flocks	0 to Slow	No
F	Daytime	Balloon / Sonde ^[4]	Minutes	Small and Large	0 to Slow	No
G	Night	Searchlights ^[5]	Seconds-Minutes	Small	0 to Slow	No
H	Night	Lasers ^[5]	Seconds-Minutes	Small	0 to Fast	No
J	Day/Night	Star	Minutes-Hours	Small	Nil	No
K	Day/Night	Planet	Hours	Large	Nil	No
L	Night	Moon	Hours	Large	Nil	No
M	Night	Meteor (often with tail)	Seconds-Minutes	Small	Very Fast	No
N	Night	Space Junk (Re-entry)	Seconds	Small	Very Fast	No
P	Night	Satellite	Minutes	Small	Slow	No
Q	Day/Dusk	Mirage	Minutes -	Small	Slow	No
R	Night	Earthlights (e.g. Norway Hessdalen) ^[7] Methane Combustion over Marshes	Seconds-Hours	Small ^[5]	Slow	No

/ Notes:

- [1] Reflected/Silhouette.
- [2] Slow if viewed head-on or tail-on.
- [3] 'V' or echelon formation.
- [4] May appear 'flash' if partly coloured, as it rotates.
- [5] May be more than one present at a time.
- [6] All objects can give the appearance of automatic/random motion, (i.e. jerky/zig zag) around a fixed point due to anti-kinesis if viewed through optics (e.g. camera, telescope, binocular shake).
- [7] Yellow form lasts 1-2 hours and changes to new position in 5-10 minutes. White/blue form flashes. Third form has strings of multiple colours moving together.
- [8] In the form of crackle, pop or explosion.

Main shapes	Colours Observed (Body &/ or Lights)					
	Black ^[4]	Pinkish/ White	Dull Metallic ^[4] Grey	Red/ Orange	Green	Blue
Sphere or Spheres	S	T	-	-	-	-
Disc	S	T	U	D	-	-
Cigar	S	T	U	-	-	-
Star /Pointed	-	T	-	-	-	-
Oval , Egg or Elliptical	S	T	U	-		
Triangular,Pyramidal or Conical ^[5]	S		U	V	V	V
Rectangle	S	-	U	-	-	-
Diamond	S	-	-	-	-	-

Key	Conditions	Remarks	Duration	Size	Motion	Sound
S	Daylight Night	Unidentified silhouette. Triangle sometimes has slightly convex surfaces and round appendages. No light reflects from within triangle. Shape seen as shadow between lights at extremities.	Sec to mins	^[1]	Zero to Fast	NIL
T	Night	Sometimes lights at extremities of triangle, pyramid, rectangle or diamond.	Sec to hours	^[2]	Zero to Fast	NIL
U	Daylight	Seen as silhouette or as reflected light from surface of 'body'	Sec to min	2-10m	Zero to Fast	Hum, whine, or buzz
V	Night	Pulsating red or orange light underneath. Green and blue at extremities	Sec to hours	^[3]	Zero to Fast	NIL

TABLE 2-2: RELATIONSHIP OF COLOURS AND SHAPES TO UNIDENTIFIABLE OBJECTS

/Footnotes

- Notes
- [1] Sizes. Triangle at least 150ft. (~15 metres), often up to 250m
 - [2] All shapes ~5-30m across/diameter, but cigar often much longer. May have single or multiple lights.
 - [3] Sizes 5-30m diameter. Seen with pyramid. Pulsation rate reportedly increases with velocity.
 - [4] At night shadow shapes assumed to be black or grey.
 - [5] Witness uncertainty between triangles, cones and pyramids. Pyramids are usually reported as three sided. Triangles are usually reported as equilateral if the witness is well-educated, or a trained observer. Refer to Working Papers at Volume 2 for description of plasma-type bodies that appear to exhibit total absorption of ambient light – and do not even reflect the light from the normally bright spheres at the extremities. It is assumed that the large prevalence of 'equilateral triangles is the correct description

YEAR	SATELLITES & DEBRIS	BALLOONS	CELESTIAL	METEOROLOGICAL	AIRCRAFT	MISC ^[1]	UXP ^[2]	% UXP (Rounded)	TOTAL
1959	1	3	1	7	4	2	4	18	22
1960	-	8	2	7	10	1	3	10	31
1961	16	11	8	20	9	5	2	3	71
1962	11	6	5	8	9	4	3	6	46
1963	18	6	4	4	10	7	2	4	51
1964	43	3	6	-	10	7	5	7	74
1965	27	3	3	2	7	-	14	25	56
1966	38	10	5	5	17	15	5	5	95
1967	49	40	18	28	113	1	45	13	350 ^[1]

TABLE 2-3(a): ANALYSIS OF REPORTED UAP EVENTS IN THE UKADR (1959-67)
(846)

- Notes:
- [1] Of this number 56 were under investigation when the year ended and are not categorised.
 - [2] UXP = unexplained phenomena
 - [3] Miscellaneous covers hoaxes, light at edge of cloud - all were explainable

/Table 2-3(b) 1968-76

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YEAR	SATELLITES & DEBRIS	BALLOONS	CELESTIAL	METEOROLOGICAL	AIRCRAFT	MISC ²¹	UXP ²¹	% UXP	TOTAL
1968									280
1969									228
1970									181
1971									379
1972									201
1973									233
1974									177
1975									208
1976									200

TABLE 2-3(b): ANALYSIS OF REPORTED UAP EVENTS IN THE UKADR (1968-76)

/Table 2-3(c) 1977-85

18
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YEAR	SATELLITES & DEBRIS	BALLOONS	CELESTIAL	METEOROLOGICAL	AIRCRAFT	MISC ^[1]	UXP ^[1]	% UXP	TOTAL
1977									435 ^[1]
1978									750 ^[1]
1979									550
1980									350
1981									600
1982									250
1983									390
1984									214
1985									177

TABLE 2-3(c) ANALYSIS OF UAP EVENTS IN THE UKADR (1977-85)

Note: [1] Although a House of Lords report quoted, respectively, 477 and 864 for these years.

Table 2-3(d) 1986-97

YEAR	SATELLITES & DEBRIS	BALLOONS	CELESTIAL	METEOROLOGICAL	AIRCRAFT	MISC ⁽¹⁾	UXP ⁽²⁾	% UXP	TOTAL
1986									120
1987									150
1988									397
1989									258
1990									209
1991									117
1992									147
1993									258
1994									250

TABLE 2-3(d): ANALYSIS OF REPORTED UAP EVENTS IN THE UKADR (1986-94)

/Table 2-3(e)

YEAR	SATELLITES & DEBRIS	BALLOONS	CELESTIAL	METEOROLOGICAL	AIRCRAFT	MISC ^[1]	UXP ^[1]	% UXP	TOTAL
1995									284
1996									595
1997									115 ^[1]

TABLE 2-3(e) ANALYSIS OF REPORTED UAP EVENTS (1986-1997)

Note: [1] Reports received in first 3 months of 1997 only.