

AN INTRODUCTORY GUIDE TO UFOs by Robert Moore

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INTRODUCTION

In the decades following their first appearance in 1947, UFOs have established a solid hold upon the popular imagination. Books, television, magazines and newspapers detail a dazzling diversity of sightings, from the latest astounding encounters to the notable UFO events of yesteryear. In each quoted instance they seem totally beyond explanation, their origin beyond understanding. But is that truly the case? For all the astounding claims made about them, the scientific community remains sceptical of UFOs, as (it appears) are the governments of every major world power.

So, what is the truth about UFOs? The best answer anyone can give at present is that nobody really knows for sure; in that sense they remain a real-life mystery. However, there are many aspects of the UFO phenomenon that are well documented. In this paper, BUFORA aims to briefly outline the history of the UFO problem as well as its basic attributes, answering, we hope, the majority of questions you have ever wanted to ask about this subject.

UFOs: THE HISTORICAL PERSPECTIVE.

The UFO as we know it today came into being around 2.59pm on Tuesday, June 24th 1947. Kenneth Arnold, a fire control systems engineer, was flying his private "Callair" aircraft over the Cascade Mountains in Washington State, USA through a clear, turbulence-free sky, attempting to locate a missing C-46 aircraft (a reward having been offered for its recovery). Puzzled by a bright flash reflecting onto his aircraft, he looked around him for the source of this reflection. As he did so, Arnold caught sight of a diagonal chain of nine mirror-bright objects moving in a manner that "a saucer would if you skipped it across the water". It was his description of their movements (and not their shape, as many believe) that gave rise to the expression "flying saucer". Kenneth Arnold's sighting was widely featured in the newspapers of the day, causing a minor sensation throughout the United States.

In the wake of the publicity surrounding this seminal UFO report, many other people came forward with "flying disc" sightings of their own, some which occurred several months before Arnold's experience. Furthermore, observations of strange aerial phenomena have been claimed throughout recorded history. There is much debate about whether certain ancient religious texts and myths contain references to "UFOs", such as the vision of the prophet Ezekiel featured in the Old Testament. There are many accounts dating from Classical, Mediaeval and Renaissance times chronicling sightings of flaming spears, burning shields, dark globes and ships seen in the sky. Similar aerial oddities feature in diverse scientific journals throughout the 17th, 18th and 19th centuries. These events could be early UFO manifestations, or simply the natural phenomena that still initiate spurious UFO sightings in our time. There are also alleged pre-20th century accounts which are suspected hoaxes, two notable examples being the so-called "Tulli papyrus", detailing "circles of fire" supposedly seen in ancient Egypt in the reign of Pharaoh Thutmose III (circa 1500 BC) and an account of a shiny disc purportedly seen over Byland Abbey, Yorkshire, England, during the 13th century.

However the first instances of aerial phenomena comparable to modern UFOs occurred in the United States during 1896 and 1897. Various newspapers recounted nocturnal observations (mainly in the central region of North America) of dark elongated forms carrying brilliant "searchlights", moving in an erratic, slow manner. Similar "airship" reports appear in other parts of the world thereafter, Britain experiencing several such waves of sightings from 1903

to 1914. Those who took these reports believed the airship was the secret construction of an American inventor, who would eventually come forward once his craft had been either perfected or patented. The media at the time featured the claims of various individuals who alleged they had constructed it, none of which were ever substantiated. Others entertained the possibility that the airship(s) originated from the planet Mars. Others blamed the clandestine activities of certain foreign powers, the Spanish and Germans during the American and English airship "scares" respectively.

As far as aviation history is concerned, airships were on the verge of being perfected in the 1890s, and became fully viable during the early 20th century. There is no solid evidence that the 1896-97 reports were instigated by any flying machine known to have existed at the time, although some believe an airship could have been secretly constructed, somehow destroyed and as a result lost to history. It is however known that a number of the American airship sighting claims are hoaxes. One notorious example of such a fabricated report is the claim made by Alexander Hamilton (and others), describing six "strange beings" hauling a calf aboard their vessel in Le Roy, Kansas in 1897 (the report was a prank, perpetuated by a so-called "liars club"). Some suspected at the time that at least some incidents were observations of bright stars or the planet Venus.

The next recorded instance of pre-1947 UFO phenomena occurred during World War II. Many pilots claimed observations of Foo Fighters, silvery-coloured "spheres" or orange, reddish, white or yellow "balls" of light that reportedly paced or played tag with aircraft for protracted periods of time. Most of the records we have of this phenomenon come from Allied (mainly American) aircrew, but similar observations were also made by Axis pilots, the extent of which has yet to be determined. The name Foo Fighter, used mostly by American pilots, possibly relates to "feu" (the French term for fire), and is thought to be inspired by a sarcastic aside from the then popular "Smokey Stover" comic-strip, "Where there's foo, there's fire". At the time they were believed to be secret weapons developed by either the Axis or Allied powers, however no convincing evidence to support this assumption has ever been uncovered.

In 1946, just a year before the birth of the modern UFO, high-altitude cigar or fiery spool-shaped objects were seen over the night skies of Denmark, Sweden and Norway. These so-called "ghost rockets" were often reported to explode in mid-air or crash into lakes. Some alleged ghost rocket fragments were recovered on at least one occasion but were found to be simple lumps of carbon! When assessed by the Swedish Defence Staff, most reports could be explained as observations of bright meteors or aircraft, around 20% of sightings could not be so accounted for.

The first appearance of the "flying saucers" in 1947 caused the government of the United States notable concern, due to their unknown origin and their reportedly superior flight characteristics. The first UFO reports were investigated by the Air Technical Intelligence Centre (ATIC), based at Wright Patterson Air Force Base in Dayton, Ohio (due to this department's brief of monitoring developments in aircraft and missiles by foreign powers). With the flying discs appearing at the beginning of the Cold War, there were genuine fears that they could be Russian devices, possibly constructed with the aid of German rocket-scientists captured at the end of World War II.

The early saucer sightings were deemed sufficiently convincing for ATIC to request the establishment of a project to study them. As a result, Project Sign was founded in December 1947. Sign was given a high "2A" priority rating and a "restricted" security classification

(until the early 1950s, even the very names of project "Sign" and "Grudge" were classified information, both being publicly referred to as "Project Saucer"). From the beginning, opinion within Project Sign concerning UFOs was, often emotively, divided between those who thought the sightings were natural phenomena, hoaxes and hallucinations and those who believed they involved advanced aerial devices. In late 1948, following a number of startling high-profile sightings, Project Sign issued a top-secret "Estimate Of The Situation". This lengthy report detailed the case for an extra-terrestrial origin for UFOs. The then Air Force's Chief-Of-Staff General Hoyt S. Vandenberg subsequently rejected these conclusions as poorly substantiated speculation.

The study project was swiftly reorganized as a result of this high-level dismissal of its findings. Those within Sign who supported an extra-terrestrial origin for UFOs were gradually reassigned elsewhere, and the project was renamed Project Grudge early in 1949. Grudge was assigned the task of deflating the "UFO craze" by both attempting to explain all sightings reported to it and, through the media, publicly demonstrate that "flying saucers" had no objective existence. It issued a lengthy report in 1949 concluding that UFOs were not a threat to either America or her allies, and that "there is no evidence that objects reported upon are the result of an advanced scientific foreign development...and constitute no direct threat to national security".

In late 1948, numerous observations of so-called "green fireballs" were reported from the American state of New Mexico. Some astronomers felt they were too green, large and bright to be conventional meteors, their trajectories also being slower and more horizontal than is usual for bolides. The fact that the sightings involved repeated, localised observations of a phenomenon with near-identical attributes only added to the uncertainty. Furthermore, when their trajectories were plotted (and subsequently checked) no meteorite fragments were ever discovered.

To resolve the uncertainty surrounding the green fireballs, the USAF initiated Project Twinkle in the summer of 1949, involving the usage of specialised tracking cameras to acquire solid evidence of this phenomenon. Although the project had initially planned to use three cameras, only one actually entered service due to a lack of funding and manpower. Project Twinkle was eventually cancelled in the middle of 1950 due to military spending being prioritised for the Korean War, the single fielded tracking camera failing to record any fireball events. However, the green fireballs were still reportedly seen in the New Mexico area for at least several years afterwards. It was later suggested in the early 1960s by astronomer D. H. Menzel that they might have been "cometoids" composed of frozen nitrogen (explaining their colour and the lack of recovered fragments).

It was at this time that Dr. J. Allan Hynek, then Professor of Astronomy at Ohio State University, first became involved in the subject, acting as astronomical consultant for the various USAF study projects. At first sceptical of UFO reality (and, as a result, often the target of the ire of UFO buffs), Hynek eventually reached the conclusion that some sightings had an extraordinary origin, warranting more than casual dismissal. Following his retirement in the early 1970s he became the subject's most prominent champion, founding the Centre for UFO Studies in 1973. He played a major role within the world UFO movement almost right up to his death in 1986. The organization he helped established (now renamed the J. Alan Hynek Centre For UFO Studies in his honour) still remains active, acting to stimulate interest in the UFO problem within the scientific community.

By this time, it was apparent that most sightings could be explained fairly satisfactorily as mistaken observations of such things as weather balloons, the planet Venus and aircraft. However, despite their efforts, 23% of Project Grudge's reports were classified as "unknowns". Grudge believed, nonetheless, that "all evidence and analysis indicate[s] that..(UFO)..reports are the result of: 1: Mis-identification of various conventional objects, 2: A mild form of mass-hysteria and war-nerve, 3: Individuals who fabricate such reports to perpetuate hoax or to seek publicity..[and]..4: Psycho-pathological persons". Following a decline in the number of UFO reports, which some believed was the "flying saucer fad" running its course, Grudge entered a virtually dormant state. Fresh UFO reports were minimally processed through normal intelligence channels, and its records of past sightings were placed in storage.

However, as the number of UFO reports began to pick up again in the early 1950s Grudge (renamed Project Blue Book in 1952) was revitalized under the directorship of Captain Edward J. Ruppelt. The USAF study project reached its zenith during his administration, conducting detailed and balanced assessments of the UFO sightings it investigated.

In January, 1953 fresh concern over UFO sightings resulted in the C.I.A convening an evaluatory committee, comprising a panel of technical experts headed by physicist Professor H. P. Robertson. After taking a week to examine various items of UFO evidence, the so-called Robertson Panel concluded that UFOs did not pose a threat to national security. Concerned over the possibility that large numbers of spurious UFO reports could clog military intelligence channels in a time of crisis, it recommended, "UFOs were to be stripped of the aura of mystery they had so unfortunately acquired". It recommended that an information campaign be conducted to reduce the "current gullibility of the public" regarding UFO reports.

Following the conclusions of the Robertson Panel, Project Blue Book became less dynamic. Its staffing-levels and funding reduced, Blue Book's investigations into UFO sightings became minimal, with many reports being "explained" in a presumptuous and arbitrary manner.

There were many who were unhappy with the sceptical, even dismissive attitude towards UFOs adopted by Project Blue Book. This resulted in the birth of a civilian study movement in the United States, devoted to conclusively proving the reality of UFOs. The two largest unofficial UFO societies active during this era were APRO (the Aerial Phenomena Research Organization, founded in 1952) and NICAP (the National Investigation Committee for Aerial Phenomena, established in 1956). Both groups are now no longer active. Given the UFO study movement was born out of disaffection with official attitudes, it is unsurprising that the 50s and 60s were a time of bitter verbal conflict between the USAF and the various civilian UFO groups.

In 1966, with Blue Book savaged by protracted public criticism, the USAF founded an independent short-term project, whose aim was to conduct detailed, scientifically-based investigations into a limited number of UFO events (assisted by a wide range of scientific disciplines ranging from astronomy to psychology). This program, staffed mainly by scientists, was headed by Dr. Edward U. Condon and based at the University of Colorado. On the project's termination in 1968 it concluded, "that further extensive study of UFOs probably cannot be justified in the expectation that science will be advanced thereby". The University of Colorado UFO project was typified by notable in-fighting, controversy concerning the

actual impartiality of those involved and the fact that, despite its negative verdict and its policy of in-depth case investigation, some 20% of the reports it studied were listed as "unexplained". Following the publication of the Colorado project's report into its activities in what is usually termed the "Condon Report", Project Blue Book was closed down in 1969.

Since 1969, the majority of UFO investigation and research work has been conducted by non-official study-groups staffed by civilian volunteers. In the United States MUFON (the Mutual UFO Network, established in 1967) gradually evolved to become America's dominant civilian UFO group and is currently one of the largest UFO societies in the world. In the United Kingdom, the UFO scene supports two main national groups, BUFORA (the British UFO Research Association founded in 1964) and Contact International (founded in 1967), along with many local groups and Internet forums. In 1977, France established a body called GEPAN, which continues, albeit in a reduced form, to this day. Recent efforts within the EU to found a Europe-spanning UFO co-ordination effort floundered in the mid-1990s due to a lack of support.

OFFICIAL ATTITUDES TO UFOs IN THE UNITED KINGDOM

In 1952 Prime Minister Winston Churchill sent a memo to the then Air Ministry asking, "What does all this stuff about flying saucers amount to?" Their reply came a short time later. Basing their findings on the USAF study-projects, the Air Ministry stated that all UFO sightings were probably explicable as natural phenomena, hoaxes and hallucinations. The United Kingdom has never conducted any long-term monitoring of reports comparable to America's Projects Sign, Grudge or Blue Book. A memo written in the mid 1960s to the USAF stated that no serious political pressure had been mounted in England to establish a Blue-Book style project, due to the Air Ministry's policy of "play[ing] down" the UFO subject. This is ironic, given that the Air Ministry's policy on UFOs was itself based on the findings of Project Blue Book!

The Ministry of Defence (MOD) replaced the Air Ministry in 1964. Its view of UFO reports remained identical to that of its precursor. The MOD, as the USAF, works on the assumption that virtually all UFO reports have rational solutions. MOD-derived sighting statistics printed in 1969 show around 10% of reports listed as "unidentified (insufficient information)".

UFO reports made through official channels (i.e. those reported or originating from military bases, civil airports and the police) are passed onto various "filter" military establishments, who then submit them to a MOD secretariat called Air Staff 2a (AS 2a), based in Whitehall, London. British UFO sightings reported through official channels have always been given a fairly low priority, AS-2a being the same department responsible for complaints relating to low-flying aircraft! The MOD's interest in a UFO report is only to determine whether the object observed poses an actual or potential threat to Britain's security. Once it is apparent that a sighting has no "defence implications", investigation into it allegedly ceases. In regards to unidentified radar contacts penetrating UK airspace, the Royal Air Force (as all other air-forces throughout the world) is known to use various means to identify them, including interception.

The precise structure of the government's UFO sighting evaluation system is shrouded in secrecy. However, it is almost certain that AS 2a passes sightings onto so-called air defence experts, MOD staff with extensive knowledge of aircraft, meteorological phenomena, radar systems, etc, for evaluation. It has been further suggested that RAF Rudloe Manor (an

extensive military facility in Wiltshire known to deal with low-flying infringements and other matters) plays, or has played a part in the government's UFO assessment activities.

Attempts to determine the Government's past and present involvement with UFOs are hampered by the considerable secrecy inherent throughout the whole British "body-politic". Under current restrictions, all official documents are withheld for at least 30 years until they are publicly disclosed. Furthermore, the system controlling the release of this information, and the organization of this information when it is released, has rendered any extensive search for UFO-relevant information extremely difficult and time consuming. With the recent advent of the Freedom of Information Act (2005), this task has become somewhat easier, but any documents that are deemed to be "sensitive" can still be withheld at the Government's discretion for up to 100 years, or even permanently.

In 1979 the late Earl Clancarty tabled a motion in the House of Lords for a Governmental study of UFOs. This motion was defeated on the grounds that "there are a wide range of natural explanations to account for such phenomenon" and that "there is nothing to suggest ...[they]... are alien spacecraft".

UFOs are raised from time to time in the House of Commons, mainly in form of Questions from Members of Parliament (MPs) concerning specific UFO events occurring in their constituencies. Sometimes requests from MPs to clarify current policy regarding UFOs or the number of reports made in a given year are forwarded to, and answered by, the Secretary for Defence.

In January 1995 an apparent near-collision between a Boeing 737 jet and a wedge-shaped object approximately 14 km SE of Manchester Airport resulted in an air miss enquiry being conducted by the Civil Aviation Authority (CAA). They were unable to discover a mundane solution for this incident, officially concluding in the final report that "the nature and identity of this object remains unknown".

UFO BASICS

To understand what a UFO actually is, one must first define both what the term means and to which human experiences it is applied. UFO is the acronym of Unidentified Flying Object, a term first popularised by Edward J. Ruppelt in the early 1950s. "UFO" was intended to replace the expressions "Flying Saucer" and "Flying Disc". These two earlier terms had by the 50s both become much derided by sensationalist media coverage and rendered inaccurate by numerous sightings of non-discoid objects. However, despite Ruppelt's efforts the expression "flying saucer" is still used by popular culture even today. There have been many attempts to define the UFO. One of the best was suggested by the so-called "Condon project" in the late 1960s, which defined UFO as equating to:

"...the stimulus for a report made by one or more individuals of something seen in the sky (or an object thought to be capable of flight but seen when landed on the earth) which the observer could not identify as having an ordinary natural origin..."

The fact that a plethora of differing phenomena are probably grouped under this (and every) definition of a "UFO" has resulted in extreme difficulties in determining the phenomenon's parameters. The fact that such events always occur out of the blue (and usually leave no physical proof in their wake) has handicapped attempts to discover the nature of the

phenomena to a considerable degree.

To determine whether a UFO report can be deemed truly anomalous, it is necessary to conduct an investigation into that incident; comparing the UFO's attributes to that of various mundane phenomena. When this is conducted, given the sighting-account contains sufficient information to permit a reasoned assessment, it is discovered that around 80-95% of all reports are explicable in terms of mis-identifications of natural and man-made objects, hoaxes and hallucinations. Such "false" UFO sightings are collectively termed "IFOs" (or Identified Flying Objects).

However, around 5-20% of sightings also appear to be "true" UFOs, reports that, even following an intensive investigation, cannot easily be explained as misperceptions, hallucinations or fabrications. Most UFO investigators or researchers (who collectively are termed ufologists) use the term UFO as a general description for all claimed sightings, whether explicable or not (hence the need to use terms such as "true UFO" or "IFO" when precisely discussing specific types of reports). Around 15% of all reports are too ill defined to permit a reasoned evaluation, important details such as date and/or duration of observation being absent or poorly recalled. Such observations are referred to as "Insufficient Information" incidents. Technically, they are neither true UFOs nor IFOs, and are effectively set to one side in the usually forlorn hope that further data concerning them will eventually be uncovered.

To further the cause of UFO research, UFO (and IFO) reports are placed into various arbitrary categories, based on either their reported distance from the observer(s) or on the general nature of what allegedly occurred. The system most often used in Britain today was originally devised by Dr. J. Allen Hynek in the early 1970s and later amended during the late 1970s by British researchers Peter Warrington & Jenny Randles. This system defines UFO reports in the following terms:

LOW DEFINITION (LD) reports are those involving UFOs that resemble either a pinpoint or cluster of lights or possess a poorly defined shape. The term LITS (Lights In The Sky) is also used to describe such events by many UFO investigators. UFOs described as having a well-defined shape are classified as MEDIUM DEFINITION (MD) incidents. UFO events that allegedly induce effects on a human, animal, machine or the surrounding area, such effects ceasing once the UFO leaves the sighting-location, are labelled CLOSE ENCOUNTERS OF THE FIRST KIND (CE1). CLOSE ENCOUNTERS OF THE SECOND KIND (CE2) are UFO events where alleged UFO-originated effects on humans, animals, machines and/or the environment occur, and endure for some period after the sighting. INSTRUMENTALLY DETECTED (ID) events relate to UFOs that are recorded or detected by a device (which can range from a camera to a radarscope). CLOSE ENCOUNTERS OF THE THIRD KIND (CE3) relate to observations of supposed UFO "entities". Finally, some researchers define so-called UFO "abduction" events or incidents with notable psychic elements as CLOSE ENCOUNTERS OF THE FOURTH KIND (CE4), but this definition class (and to what type of UFO experience it is applied) remains highly controversial. Ufologists often refer to sightings rated CE1 or higher as "high strangeness" incidents.

FIGURE 1:

Sample of 1,003 U.K reports investigated by the Northern UFO Network during 1978-1979
(divided into UFOs & IFOs and grouped by sighting-class)

UFOs:	IFOs:
LD: 14.0%	51.0%
MD: 54.0%	45.0%
CE1: 21.0%	3.0%
CE2: 3.0%	0.3%
CE3: 7.0%	0.3%
CE4: 1.0%	0.3%

It is estimated (on figures derived from various opinion polls) that 2%-7% of the British population (1.1 - 4 million people) have observed what they believe to be a UFO. It is further estimated that only around 10% of these witnesses report their sightings to the Ministry of Defence and/or civilian UFO societies. This would suggest that a total of around 100,000-400,000 recorded British sightings exist, held by the various bodies involved in collating UFO data.

Obviously, these substantial figures do not indicate that we have hordes of alien space vessels flying overhead! As previously explained, of those containing sufficient data to permit an investigation, 80-95% of any given samples of UFO events turn out to be explicable. Many such reports involve very basic textbook descriptions of various mundane phenomena, so basic that simply asking a few obvious questions to a witness over the telephone often identifies them. Other IFO-based incidents are more complex, requiring a major effort to resolve them.

Whatever their level of complexity, ufologists have discovered most IFO reports are instigated by only a few types of natural and man-made phenomena (with other causes appearing only occasionally).

FIGURE 2:

Common sources of IFO reports and the approximate percentage of explicable sightings they generate:

- o Aircraft = 25%
- o Stars & Planets = 20%
- o Bolides and Satellite re-entry = 10%
- o Other (birds, flares, clouds etc) =25%
- o Weather/Research Balloons = 5.0%
- o Hoaxes = 5.0%
- o Hallucinations = 5.0%

Aircraft and helicopters generate a considerable number of IFO reports. Depending on an aircraft's angle and distance from an observer, anything from one to four or more lights may be observed. Aircraft-body lighting follows precise regulations established many years ago by the C.A.A. (Civil Aviation Authority). A white light must be located on an aircraft's tail, a green light on the left wing, a red light on the right wing, with one (sometimes two) red flashing lights mounted on the fuselage. Alternatively, brilliant white strobe lights can be used on the wings and tail, in place of the conventional steady white, green and red lights. Furthermore, all aircraft are equipped with brilliant landing lights. These are switched on long before touchdown during misty, nocturnal conditions and can be seen from many kilometres away. A physiological process called "perceptual filling" may result in an observer's mind "joining together" a configuration of lights, resulting in them being perceived as attached to a darkened, unearthly-looking (but spurious) form.

Aircraft can also assume very strange, illusory shapes even under daylight conditions. If travelling directly towards a witness, an aircraft can temporarily assume a "domed disc" like appearance, or a shiny cigar/disc shape object if viewed from sideways-on or below during a sunny day (its wings obscured by distance, angle or solar glare).

In the United States light aircraft are used in nocturnal advertising ventures, employing a matrix of lights attached to a metal grid, located either below its wings or trailing behind it. When activated, it functions as an illuminated billboard, able to display a variety of computer-generated commercial messages. If viewed from some distance at an odd angle they can present a confusing, shifting light-pattern, often taken to be a rotating flying saucer by the unwary! Such advertising aircraft of this type are currently rare in Britain; airships using near-identical "bill-boards" positioned on the sides of their gasbags enjoy a limited use in this country.

Airborne refuelling tanker-planes may be occasionally observed in certain parts of the United Kingdom, often near coastal regions and restricted military air-zones. They utilise a number of non-standard, diverse lighting configurations located on their wings and fuselage. Operating at considerable altitudes, their engine noise is often muffled by their marked distance from ground-based observers.

Another common source of IFO reports are bright, naked-eye planets and stars (the planet Venus being the most commonly misperceived astronomical body). The majority of astronomical-derived incidents involve nothing too outlandish, usually observations of stationary distant lights visible for ten minutes or more. However, they can also be subject to numerous adverse perceptual and atmospheric effects. They can rapidly and repeatedly "flash" different colours of the spectrum (often white, red, green and blue). This effect is induced by atmospheric turbulence, a more extreme variety of the condition that causes stars to "twinkle".

Otherwise unnoticeable, involuntary eyeball movements become starkly apparent when observing a bright light against a dark, featureless background. This phenomenon (termed autokinesis) can cause a star or planet to make apparently erratic, stop-start "darting" motions confined to a limited area of sky. Similar motions can be induced by viewing an astronomical object through hand-held binoculars or a

camera, induced in this instance by involuntary hand-tremor. Finally, induced motion is another effect able to impart illusory motion onto a stellar body. A star or a planet viewed from a moving vehicle will seem to "follow" or "pace" it, stopping and starting when the vehicle does.

Bolides are super-bright, long-duration meteors that have generated a fair share of spurious UFO reports over the years. Bolides are usually seen during the night, but exceptionally bright ones may be visible in daylight. They are often described as resembling a glowing sphere or (at night) a darkened cigar or disc with illuminated "windows". These so-called "windows" are, in actuality, fragmented sections of a bolide illuminated by atmospheric friction and following the same course as the original complete body. In either instance a long, incandescent trail is nearly always emitting from its rear. Bolides follow continuous straight or curved trajectories, and are usually visible for 10 seconds or less (up to 30 seconds in a few rare instances); a bolide's demise is often marked by its exploding with a loud bang. Expended rocket sections or satellites re-entering the atmosphere result in a similar phenomenon, but tend to be slower moving and visible for around two minutes.

Weather balloons are responsible for many daylight UFO observations. Large balloons used to accumulate data on upper-atmospheric conditions generate the majority of spurious reports. The smaller (more common) "radiosonde" type balloons are harder to observe and burst within hours of launch, but research balloons can endure for many weeks, travelling a notable distance during their lifetime. Balloons can, depending on lighting conditions, viewing angle and degree of inflation which changes with height, assume a spherical, tear drop, triangular or discoid shape. Their colour is dependent on the prevalent lighting conditions; white or silvery on a sunny day, greyish when overcast. They may even slowly "change colour" (from white to red) when observed around sunset. Balloons drift with the prevailing wind, but may suddenly shoot rapidly upwards and/or temporarily dart off in a different direction if caught in an air thermal. Really high altitude balloons can travel on upper atmospheric winds, which may blow in a different direction to winds prevalent at lower altitudes.

Artificial satellites appear to the naked eye as a single, distant, whitish pinpoint of light traversing along a swift, continuous arch-like path. A satellite may vanish suddenly near the horizon, as it becomes eclipsed by the earth's shadow. They can also seemingly assume a zigzagging course, an illusion that also results from the autokinesis effect. Satellites were once a notable source of UFO reports, but are less so today.

Since their introduction in the early 1980s, laser-light displays have become a major source of UFO reports. Sightings from those unaware of their actual origin describe either a multitude of swiftly-moving white lights executing repeating, rhythmic motions (such as circling, meeting at a single point and then shooting away) or a dark spinning "disc" with white lights running around its edge. These displays can be seen from a considerable distance if the cloud base is fairly high.

Birds, parachute flares, model aircraft, airships, toy disc-shaped balloons, spotlights and highly-reflective "Mylar" kites also generate numerous reports, but much fewer in comparison to aircraft, balloons and astronomical bodies. Rarer still are sightings instigated by ball lightning, mirages, lenticular or noctilucent clouds and sun (or

moon) dogs (fuzzy glows created by free-floating ice crystals, reflecting the light of either the sun or the moon).

Almost as uncommon are sightings based on subjective causes, such as myopia (the so-called "spots before the eyes" effect) and after-images (transient "blurs" on the eyeball caused by staring at bright light-sources). Despite the remarks of various casual UFO detractors, few reports involve either alcohol or narcotic-induced hallucinations. Those hallucinations that do appear mainly involve naturally induced altered states of consciousness, especially common in people on the verge of falling asleep or waking up. These are termed hypnagogic or hypnopompic hallucinations.

Hoax sightings are also quite rare, only amounting to around 5% of all reports. Fabricated UFO experiences tend to involve photographs, purported physical traces and claims of close encounters, rarely basic observations of aerial objects.

FIGURE 3a:

Statistical breakdown of 1051 UFO sightings
 originating from Northern England during 1975-1979

INSUFFICIENT DATA: 111 (10.56%). IFOS: 825 (78.49%) TRUE UFOS: 115 (10.94%)

Breakdown of IFO types....

AIRCRAFT: 350	METEOR/RENTRIES: 88	STAR/PLANET: 78
BALLOON: 53	SATELLITES: 48	OPTICAL ILLUSIONS: 20
BIRDS: 20	FLARE: 18	MOON: 18
BALL LIGHTNING: 12	CLOUD: 11	PSYCHOLOGICAL: 10
GROUND LIGHTS: 9	AIRCRAFT CONTRAIL: 9	FIRE: 4
KITES: 4	CORONA DISCHARGE: 3	AIRSHIPS: 2
INSECTS: 2	FILM DEFECT: 2	AIR RESIDUE: 1
DOG: 1	FUNGUS:1	MODEL AIRCRAFT: 1
SUNSPOTS: 1		

FIGURE 3b:

205 U.K reports Jan 1980- Dec 1982
 (from BUFORA records)

IFOS: 118 (57.5%), INSUFFICIENT DATA: 57 (27.8%), UFOs/UAPs: 30 (14.5%)

Breakdown of IFO types.....

AIRCRAFT: 28	METEORS: 18	C/L: 11
VENUS: 10	STARS: 7	SATELLITE: 5
BALL LIGHTNING: 11	SIGNAL FLARES 4	HELICOPTER: 3
JUPITER/SATURN 2	MOON: 2	HOAX: 2
HALLUCINATION: 2	KITE: 2	LIGHTHOUSE: 1
SEARCHLIGHT: 1	GROUND LIGHT: 1	REFLECTIONS: 1

THE WHO, WHERE & WHEN OF UFO REPORTS

Who sees UFOs?

Members of every profession have made UFO reports, from politicians, scientists and housewives to road sweepers. Sighting reports made by so-called "trained observers", i.e. those from occupations specifically tutored to quickly assimilate observed data (pilots, astronomers, policemen, etc) are outnumbered about 4 to 1 by those made by "untrained" observers (such as blue and white-collar workers). This appears consistent with the fewer number of "trained observers" within society. Men report approximately the same proportion of sightings as women. It is not uncommon for UFO and IFO observations to involve two people or more, who sometimes may be situated at different locations. IFO types that manifest within the upper atmosphere (such as satellite re-entries) are often observed by hundreds of people at a time.

Observations of IFOs and UFOs involve the same types of people, IFO reports even being made by a considerable number of "trained" observers. This is because nobody, no matter how well schooled, is instructed in recognizing balloons and planes at every misleading angle and situation. Furthermore, certain IFO types do not fall within the scope of a person's life-experience; an astronomer would recognize a stationary twinkling light as a bright star, but is as likely to mistake an aircraft travelling along his or her line of sight as a "domed" disc as anyone else. This said, some statistics do appear to show that skilled observers make fewer IFO reports. By very definition a true UFO is unknown, and there are no experts in identifying the unknown.

The level of a witness' prior interest in UFOs is a matter of great concern to ufologists. Some samples of UFO report data, based on those made largely by members of the general public, have shown that a higher proportion of witnesses (around 2 out of every 3 observers) were interested in the subject before their sighting, compared with those claiming to be just indifferent or uninterested in them. Whether reports made exclusively by pilots, police officers and military personnel to official bodies such as the MOD would show a similar bias is unclear. Not surprisingly, many UFO witnesses develop an interest in the subject following their experience. This again raises concern as to whether their report has been "contaminated" by their pursuit of the subject. The fact that information on UFOs, albeit superficial and sensationalised appears virtually everywhere in our culture suggests that there are no "UFO- innocent" witnesses, stereotypical portrayals of the phenomenon being known to almost everyone.

The majority of witnesses have only one sighting experience during their lifetime, but a few have more. There are individuals, termed "repeaters" by ufology, who report a greater number of UFO sightings than normal, often over an extended period of time. Close-encounter participants often have repeated close-encounter episodes, and usually also claim psychic abilities and/or "paranormal" experiences. Other repeaters report a constant stream of low/medium definition observations which, on

investigation, turn out to be probably explicable, with distinct indications present that the witness is over-keen to accept IFO phenomena as something more outlandish.

When are UFOs usually seen?

All types of UFO experiences have occurred on every hour, day, week and month of the year. However, a few general temporal sighting patterns have been uncovered. It is known that about three out of every four events occur at night, the majority of UFO and IFO incidents happening around the hours of 8-11pm (with activity peaking around 9.00pm). These times closely match those when the majority of people are home from work. There is a notable bias for sightings to occur during the summer and early autumn months, i.e. from June to October. In regard to day of the week, various studies have either shown no clear pattern or a different "favoured" week-day (Wednesday in one instance, Saturday in another).

Where are UFOs usually seen?

UFOs have been observed virtually everywhere in the world, from a variety of locations- outdoors, indoors, from cars and aircraft, cities, towns, countryside and wilderness. However, sightings tend to occur more often in rural rather than urban areas, a factor possibility attributable to "light pollution", the powerful glare of urban lighting that swamps out all but the brightest lights in the sky. On occasion, it has been known for a cluster of many UFO incidents to suddenly occur within a period of a few weeks, or even up to several months. Ufologists call these periods of increased localized UFO activity "flaps". Those active in ufology accept that most flaps are caused by media publicity being given to a single UFO report (or a recently-formed local UFO group appealing for sightings), which encourages others to come forward with their observations. However, a few statistical samples do apparently show a disproportionate rise in "true" UFOs during some flaps, a situation obviously of considerable interest to ufology.

Flaps tend to be fairly localized events, affecting only a county or district. However, national surges in the number of UFO reports, termed "waves", have occurred on several occasions and often lasting for several months or more. Examples of notable "waves" in past times and places include 1947,1950 (United States), 1954 (France), 1957, 1965-67 & 1973 (United States), 1967 & 1977 (United Kingdom) and 1978 (United Kingdom, Italy and New Zealand). As with "flaps", the majority appear to be media-driven, but a few appear to have been host to higher-than normal levels of "true" UFO activity, such as the wave that occurred in the United States in 1952, where the percentage of "true" UFOs was estimated to be around 20%. There have also been periods when the number of reports has fallen dramatically, often on a global scale (such the early 1970s and the early-mid 1980s and from the late 1990s onwards).

A few areas on Earth appear to be host to higher levels of UFO activity than other regions, often for years, even decades at a time. The Pennine Hills in Northern England and the Hessdalen valley in Norway are examples of two such places, termed "ufocals", or sometimes "windows", by some UFO researchers. It is suspected that

local geological features, such as earth faulting are responsible for naturally generating the majority of aerial anomalies seen in these regions. Other supposed ufocals, however, have a more dubious ufological history. From the mid-1960s up to the late 1970s the outskirts of the town of Warminster, in the British county of Wiltshire, were famed as a place of intense UFO activity. Unfortunately, the majority of sightings originated from non-locals, usually over-enthusiastic UFO buffs attracted to Warminster by books proclaiming it to be a UFO hot spot. Given the town is adjacent to Salisbury Plain, home of the largest army testing-range in the United Kingdom, it is probable that many sightings were attributable to military activity, as well as satellites, astronomical bodies and aircraft.

COMMON ATTRIBUTES OF "TRUE" UFOs

Unexplained UFOs have a wide variety of reported attributes, the recognition of which obviously brings us closer to understanding the core phenomenon.

Basic UFO Shapes

UFO forms can be divided into three basic types, "soft", "median" and "hard". The soft (or BOL – ball of light) UFO category includes a variety of self-luminous forms, ranging from star-like points of light to rudimentary shapes, often round or spherical with an unstructured appearance, more akin to a ball of glowing gas than a manufactured device. They comprise the majority of observed UFOs, most of which are probably explicable in mundane terms. Observations of nebulous, cloud or glowing trail-like forms are also included in this category. In between the soft and hard forms are medians, UFOs with indistinct shapes, or with a “surface” that appears to be partially illuminated by "body-lights". The majority of so-called "flying triangle" events fall into this category. Hard or exotic forms are UFOs which appear solid and substantial, possessing an elaborate, clearly-defined shape (such as a disc surmounted by a dome,) and are often endowed with one or more notable surface features such as "windows", "rims", etc.

Soft, median and exotic UFOs usually possess at least some kind of basic geometrical form, even if in the case of the former two UFO types it is more suggested than definite. The more common basic shape-types, which are given in no particular order, include the following:

- o Disc-like (resembling a double or single-sided convex lens, a hat or a coin)
- o Oval/ellipse shaped (usually horizontally-orientated)
- o Tube or elongated forms (ends rounded or flattened, sometimes with outwardly-bulging sides)
- o Triangular (horizontally or vertically orientated)
- o Spherical

- o Dome or hemispherical forms (flat end usually facing downwards)
- o Cone/tear-drop/pear like (pointed end facing either upwards or downwards)

Barrel, boomerang, coil, crescent, cross, cube, dart, dumb-bell, diamond, heel, hexagon, lozenge, pyramid, and ring shapes are also occasionally reported. The dominance of the various shape-types has been known to change through time. Prior to the late 1980s sightings of disc-like forms predominated (especially in exotic UFO incidents), but were superseded by observations of flying triangles during the 1990s.

Size

The estimated sizes of UFOs are a highly variable attribute, and one usually impossible to determine with any accuracy against a near-featureless daylight or nocturnal sky. UFO size estimates range from about half a metre (or less), up to 100 metres or more. Discoid forms tend to be longer than they are taller, with estimated diameters of around 8 metres or more. The majority of so-called "flying triangles" tend to be much larger, being reported on many occasions to be seemingly equal in length to several jet liners or soccer-pitches placed end-to-end.

Soft UFOs-the BOL Connection

The majority of unexplainable "soft" UFO incidents relate to the observation, sometimes at close quarters, of a featureless, highly luminous mass, often stated to be round or spherical in shape. As a consequence, most UFO researchers term them BOLs (balls of light). That stated, this phenomenon is also associated with other shapes, including glowing cloud-like or repeatedly shape-changing masses. BOLs tend to be fairly small in size (around 10-20 cms in diameter), but can also be much bigger or much smaller. They are usually coloured orange, red, reddish-orange, yellow, blue or silver. BOLs have been observed from high-altitude aircraft, but are more often seen floating, usually very close to the observer, several tens of centimetres or so above the ground. Both BOLS and exotic UFOs exhibit identical motion attributes; sudden stops at high speed, protracted hovering, sudden rapid acceleration, etc. BOL manifestations are also associated with most, if not all of the effects attributed to "hard" UFO forms; radio disturbance, physical trace evidence and a range of biological effects ranging from "pins and needles" to skin swellings and blemishes.

It has been known for BOL manifestations to occur repeatedly in a given region, although areas host to repeat BOL incidents are also host to other types of UFO events, such as "exotics" and entity encounters. Instances of BOL-like phenomena are much more common than observations of "hard" UFOs, with some researchers claiming they comprise around 75%-90% of all sightings. The light may sometimes be stated to act in a purposeful manner seemingly reacting to the presence of an observer, moving in a controlled manner, avoiding objects, etc.

Light forms similar to BOLS are also encountered in a variety of "paranormal" events, ranging from spiritualist séances, psychic phenomena and also some apparitional encounters. A considerable number of observations of anomalous entities relate to

figures enveloped by a circular cocoon of light. Other reports appear to describe BOL-forms seemingly metamorphosing into human-like forms.

Some researchers believe BOLs are extra-terrestrial technology such as miniature robotic survey probes. Others feel BOLs are, in actuality, unusual natural phenomena, similar to ball lightning. If this were so, instances of supposed purposeful behaviour would be the result of a complex interplay between human expectation and actions determined by the laws of physics.

Alleged Surface Features

"Hard" UFOs are either reported to have smooth, featureless surfaces or to possess a wide variety of external features, many which seem markedly artificial in appearance. As with shape-types, these can be divided onto a number of arbitrary classes:

Openings include features described as "windows", "portholes" (usually round, rectangular or elliptical in shape), "doors" (which - in the case of landed UFOs - are associated with ladders or ramps leading to the ground) and substantial voids within the UFO's body itself, which often emit a brilliant light.

Protrusions are features such as jet-like "engine pods", "fins" (and sometimes wings), "propellers", wire-like "antennae", either hanging from bottom, protruding from the top or projecting all around its body, and often rod-like "landing gear" protruding downwards from a UFO's ground ward section.

Projections include "towers" resembling radio/light masts (often situated on a UFO's top) tubes/blocks (usually on a UFO's top or bottom) and domes (either hemispherical, square or rectangular). Domes are usually located on a UFO's upper section, but have been observed protruding from every other body location.

Textures mainly refer to "tiled", "panelled", "pock-marked", "bumpy" or deep symmetrically configured lines covering a large portion of the UFO's surface area. A central rim or "ring" running around a UFO's diameter is reported from time to time, as are UFOs with rotating sections often centred within or on a static body-section.

The presence of such surface features is one of the main factors that suggests that at least a few UFOs are advanced flying devices of some kind. However, it is possible that they are illusory, subjectively construed from irregular, darkened or oddly illuminated portions of a UFO. Hence, unfortunately, they are insufficient evidence in themselves to disprove the notion that all UFOs are unusual natural phenomena.

Colour

Daylight UFOs are usually reported to be an highly- reflective or shiny white, or silver or aluminium. Alternatively, they may also be grey, dark blue, brown, green, orange, pink, red or yellow. Nocturnal UFOs are often described as being a "self-luminous" or "glowing" white, red, orange, yellow, pink, green, blue, or silver hued. Combinations of two of the aforementioned colours appear almost as frequently (red-orange being especially common). Sightings of UFOs with bands of differing colours

have also been documented. Non-luminous nocturnal UFOs are almost always stated to be adorned with one or more "body-lights", which are usually coloured blue, white, red, orange and/or green. The reported sizes of these lights vary from that of an aircraft's anti collision beacons to that of a large searchlight (or bigger). Nighttime UFOs are stated on numerous occasions to change colour, especially when altering from one mode of motion to another. Patterns to these changes have purportedly been determined, but have yet to be conclusively verified by research.

UFOs are often associated with a substantial "halo" or "glowing mist" running around the edge. They have also been observed emitting one (or more) highly manoeuvrable "light-beams" on many occasions. Solid light is the name given to a particular class of light-beam; a conical or tubular shaped region of brightness that can be contracted or expanded to any degree, illuminating only the area upon which it is directed. Many UFO researchers have noted similarities between this phenomenon and laser beams. Whatever its nature, solid light is rarely alleged to cause physical injury.

Motion

The reported movements of UFOs are among the phenomenon's most extensive and variable attributes. A UFO's speed can range from stationary to faster than a rocket, and can alter from and between these extremes many times during a sighting. Even when estimated to be travelling at considerable velocities, UFOs are rarely associated with a sonic boom. They are seemingly able to traverse along all possible axes of motion, and also have the ability to hover for extended periods of time. The more puzzling aspects of UFO flight behaviour is their reported abilities to perform instant very high-speed, 90° angle turns, instantaneous stops whilst moving at rapid speed and instant, very high-speed acceleration from stationary (or hovering). UFOs travelling in a downwards (but also sometimes upwards) direction are described to exhibiting a side-to-side slewing motion similar to a swinging pendulum or a falling leaf in some instances. Most puzzling of all their described motion characteristics are instances of UFOs that vanish suddenly in a (seemingly) clear sky.

Internal Motion

UFOs also exhibit forms of motion other than that associated with flight-trajectory. Rotation of a UFO's upper and/or lower sections (in either a clockwise or anti-clockwise direction) is probably the most commonly reported form of internal motion, most often noted in observations of discoid or ovoid-shaped UFOs. In a few instances the whole object itself may appear to rotate. Much less often, a notable side-to-side wobble or fluttering motion is exhibited.

Sounds, Smells, Trails and Discharges

UFOs are usually stated to be noiseless, but approximately one in every five reportedly emits a buzzing, cracking, humming, roaring, swishing, whirring or whining sound. Rarer still, UFOs are associated with an odour, and occasionally an acrid like smell is noted, comparable with sulphur, ozone or burning hydrocarbons. Emissions of (mainly luminous) heat, trails, sparks, smoke or vapour are also occasionally reported.

Temporary and Permanent Reactions and Effects

It is occasionally reported that some UFOs induce temporary or permanent effects on the surroundings, and on any people, animals and objects present during a sighting.

a: Biological Reactions

CE I reports (i.e. those relating to UFO-induced transitory effects) often pertain to sensations of prickly skin (or "pins and needles"), heat, dizziness and nausea, static electrical-like bristling of body-hair, temporary paralysis or weakness/numbness in specific body-regions and feelings of externally-originating pressure and tension upon the body. Such temporary effects are harder to determine in the case of animals, but numerous incidents relate to pets, farmyard and wild beasts showing signs of agitation and alarm just prior to a UFO observation.

The lesser CE II-level effects (at least in regards to humans) relate to protracted body pains, numbness and headaches. More seriously, both animals and people have exhibited rashes, tanning, hair/fur loss and skin burns following a reported UFO encounter. In particular, a UFO-induced reaction similar to "Klieg conjunctivitis" is often claimed; in humans this manifests as a reddish, watery puffiness around the eyes present for several days or more. Pet dogs have (in several instances) shown apparent wariness, even fear of supposed UFO "landing sites".

b: "Oz Factor" Manifestations

The "Oz factor" is a term (first coined by UFO researcher Jenny Randles in the early 1980s) used to describe an aura of unreality noted during some UFO incidents. Often this relates to an abnormal absence of traffic, people and ambient sounds just prior to a sighting. Possibly related to the "Oz factor" are reports from witnesses of UFOs seen over highly populated areas, which nobody else seemingly observed. Oz factor events also involve sensations of inner peace, states of personal "dissociation", distorted perceptions of the environment and marked differences between witness-estimated and actually elapsed time.

c: Mechanical Effects

UFO-induced transient effects on mechanical devices include the presence of heavy signal interference on radios and televisions, detrimental effects on compasses and watches, the dimming or extinguishing of lights and electrical power cut-offs, all of which reportedly return to normal once the UFO leaves the sighting vicinity. Cars are also affected in the same manner; their headlights and engines falter or stop working altogether, but kick back again into life almost the instant the UFO moves away. It is claimed that diesel-engine vehicles are less susceptible to this UFO-induced stalling effect, but this is by no means definite.

Permanent mechanical effects are much rarer than transitory ones. It is sometimes alleged that batteries are drained of their stored energy during a UFO incident. Sometimes, damage is supposedly inflicted on mechanical systems and electronic circuitry, and the external structures of some devices reportedly suffer impact-like

damage.

In ufological literature these effects are often labelled Electromagnetic (or E.M.) phenomena, even though there is no real evidence (to date) that electromagnetic processes are responsible for generating them!

d: Environmental Effects

As with all UFO-instigated effects they can be divided into transient and permanent categories:

Transient environmental effects relate to "strong-wind" like buffeting of trees, man-made features, grass, waves and dust lying directly beneath a UFO.

Permanent environmental effects relate to damage supposedly caused by a "landed" UFO. These include spaced indentations suggestive of "landing-pod" marks, also extensive craters, furrows, holes, scooped-out areas of earth and even damaged tar macadam surfaces. These may be associated with a so-called "UFO nest", an often circular area of burnt, bare, crushed or swirled and flattened grass or other flora. Surrounding tree limbs and other adjacent plant matter can also show signs of being burned, crushed, dehydrated and/or discoloured.

"Crop Circles"

During the summer of 1980 three round, swirled depressions (spaced some 137 metres apart) were found in a wheat field near Westbury, Wiltshire. Thereafter, throughout the 1980s many similar circles were appearing in crop fields each summer, mainly in the counties of Wiltshire and Hampshire. By then, the "circles" had largely assumed more complex configurations, some surrounded by one or more concentric rings, others arranged in a cross or triangular pattern, others still with a single line - or "spur" - jutting out from one end, or a combination of these features. By the early 1990s even more complex crop circle patterns termed "pictograms" had become notably common. These comprised anything from a very large linear arrangement of circles joined by a thin line of flattened crop (surrounded by several other level or bent lines), up to massive triangular, lozenge, dumb-bell, snake-like, snail-like, wheel-shaped or "Mandelbrot set" configurations. The circles were, by this time, being extensively promoted by the media, virtually eclipsing UFOs in popularity.

Except on a very few notable occasions, there were no witnesses to the formation of the majority of crop circles. This resulted in considerable and varied speculation regarding their origin. Due to their similarity to so-called "UFO nests", some believed crop circles were the result of UFO activity despite the lack of inexplicable sightings prior to their appearance. Others proposed an invisible "non-human intelligence" or a "plasma vortex" (a hypothetical natural phenomenon related to tornadoes and funnel clouds). All sides, however, agreed that a sizable proportion of circles could not be hoaxes; they were too many and their internal and external structure were too complex, showing no obvious indication of being fabricated. However, on the 9th September 1991 the crop-circle community was shaken by a front-page *Today* newspaper story featuring the account of two middle-aged artists (Doug Bower and Dave Chorley), which stated they had faked the first crop circles, and others

subsequently. To confound matters further, evidence was also uncovered of a diversity of crop-circle faking groups and singular hoaxers, who had reportedly been fabricating circles independently of Bower and Chorley.

Despite these revelations, quite a number of circle advocates still maintain that anomalous crop circles do exist, rejecting outright the possibility that the circles mystery is totally attributable to hoaxing. The few documented eyewitness accounts of alleged circle formation describe an invisible wind-like force (sometimes associated with glows and a humming/whirling sound) laying down crops in a basic singular, circular pattern. Coupled with some possible historical references to crop circles (such as the "Mowing Devil" pamphlet of 1678) a good case can still be made for a (albeit rare) circles effect phenomenon, able to create single circular depressions in flora. **Whatever the case, there is still no good evidence to link UFOs with the modern deluge of crop circles.** Does the fact they resemble "saucer nests" infer a direct UFO connection, or is it simply due to Bower and Chorley being inspired by reports of a "saucer nest" discovered at Tully, Australia in 1966? The circles controversy clearly shows the prudence of suspicion towards any "mysterious" ground trace whose mode of formation is totally unknown. The bulk of the evidence points at complex formations being the product of very human land artists.

UFO Entities

A small proportion of UFO incidents are associated with claimed observations of unearthly entities. The question of the validity of these reports has always been a matter of great controversy within the UFO community. Whatever their actual reality status, it is helpful to examine these claims from a historical viewpoint, as prevailing attitudes have always markedly influenced how they are perceived by some ufologists, the media and the general public.

The pre-Contactee Era (1947 to 1951)

The early UFO movement did not exist for most of this period. No one had any clear conception of what/who piloted the UFOs. Their unearthly high-g manoeuvres suggested to early students of the phenomenon either robotic craft, or beings totally beyond human conception. The comic-book figure of the "little green man" had already existed for some time, inspired by science fiction pulp magazines and speculation (dating from the 1890s) concerning the possibility of life on Mars.

The Contactee Era (1951-1960)

In 1953, via the book *Flying Saucers Have Landed*, the world first learned of the claims of George Adamski. The second section of this work (the first portion containing a review of historical UFO reports authored by Desmond Leslie) gave an account of an alleged meeting in the Californian desert between Adamski and a tall, blond-haired man from Venus during November 1951. As a result his fame spread throughout the world. Throughout the 1950s other individuals claimed meetings with entities from various planets and satellites of our solar system (Mars, Venus, Jupiter, Saturn, the Moon, and - in one claim - a world called Charion, permanently hidden from the earth by our Sun). In almost every instance the entities resembled attractive human beings, hailing from utopian civilizations, who had chosen the contactees to be

their earthly representatives. The messages supposedly relayed by these aliens were mainly concerned with improving the spiritual development of mankind. The contactees were very much the ufological "stars" of the 1950s. Numerous books were published detailing their experiences and lecture tours and conventions were held to promote their "message" to whomever would listen.

The UFO study movement (which was just beginning to coalesce at this time) recoiled in horror at such claims. They largely dismissed the contactees as charlatans who gave the subject a poor, unscientific image in the minds of the general public. Mainly as a result of the contactees, many leading UFO societies (such as NICAP) showed considerable scepticism towards all reports of UFO entities, and thus paid little attention to them.

The CE III Era (1955 to 1982)

However, as the contactee era began to slowly fade during the early 1960s some groups started to review their attitude towards entity reports. This came too late for many early entity reports, which as a result of ufology's prevalent scepticism were often poorly documented (if at all). However, a few managed to survive this atmosphere of negativism. Some early cases (such as Kelly Hopkinsville (1955) and Flatwoods (1952)) tended to refer to monstrous beings, others to little men clad in diving suits. This in itself was a hindrance to their serious treatment, having echoes of the 1950s B-movie "horror-aliens" and the humorous "little green man" of the funny-pages. In October 1957 one of the first recorded "abduction" events purportedly occurred in Brazil, involving the supposed capture of Antonio Villas Boas by several entities for breeding purposes.

Villas Boas had a clear recollection of all that supposedly befell him. However, the experience of Betty & Barney Hill in New Hampshire, USA in September 1961 first introduced the concept of missing time, both witnesses being unable to recall two hours of their lives following a UFO encounter. Attempts to determine what occurred during this period resulted in the first use of regression hypnosis in ufology. The Hill's hypnosis sessions brought forth a tale of enforced boarding of a UFO and a medical examination by telepathic, large-eyed, grey-skinned beings, elements that were to appear in numerous other incidents in the future. By the 1970s entity reports had become a largely accepted part of the UFO phenomenon, even taken seriously by figures such as Dr. J. Allan Hynek, who defined them in his famous classification system as "Close Encounters of the third Kind", or CE IIIs, thus giving the title to one of the most influential films in ufo/alien movie history.

However, the majority of CE IIIs were consciously recalled events, often claiming fleeting observations of evasive entities with a very wide variety of physical appearances. By the late 1960s the use of hypnotic regression in suspected instances of "missing time" was becoming almost routine. In 1976, New York-based sculptor Budd Hopkins became actively involved in ufology, a subject he was destined to strongly influence during the next decade.

The "Abduction" Era (1982 and beyond)

As previously stated, pre-1980s CE IIIs were mainly fully consciously recalled events, not requiring the use of hypnosis. However, this particular type of entity experience began to decline during the early 1980s and beyond. By the mid-1970s the term "abduction" (covering instances of missing time and later hypnotically-retrieved "memories" of medical examinations by "aliens") had already entered common usage within the UFO community. By the mid-1980s Budd Hopkins had already established himself as a noted authority on abductions. However, the pre-eminence of such experiences began in 1987 with the publication of *Communion*, a book detailing the entity encounters of the writer Whitley Strieber. This work, the advertising campaign used to promote it (and also a film of Strieber's experiences made several years later) gave widespread public prominence to this aspect of ufology. From the groundswell of interest created by Strieber, the work of Budd Hopkins and other American abduction researchers grew in prominence as a result. By the mid-1990s so-called abductions had become the predominant form of UFO entity encounter.

The Typical CE III Event

The stereotypical CE III usually involves a single witness (but occasionally two or more people) who accidentally observes an unusual entity near, or within a UFO whilst going about his/her everyday business. These beings are variously described as either simply observing their surroundings, operating "machinery" or taking samples from the environment. It is common for little substantial contact to occur between both parties (but communication may be alleged in some instances). The entities may either move normally or "float" some distance from the ground. CE III events usually occur within areas of low population, often around the evening/early morning hours and have a duration of around 10 minutes.

Of course, as with all stereotypes, the above description of a "typical" CE III event is a gross generalization, each case differing in many ways from this norm.

Common Types of UFO Entities

With a diverse variety of supposed UFO entity forms having been recorded to date, the expression "common type" can, at best be considered a misnomer. Thus, this section simply aims to give a general overview of the morphology of supposed UFO occupants.

The "grey" is a very consistently described entity-class, commonly appearing in both abduction narratives and "conventional" CE IIIs since (at least) the 1960s. They are so termed because of their purported grey/greyish-blue skin coloration. Greys are often estimated to be around 1 metre in height, with a "spindly" humanoid stature and very long, thin fingers. Their heads are always described as being large, usually bald and pear-shaped, with big, often opaque, oval "wraparound" eyes and a slit-like mouth and nose.

Human-like entities have also been reported. Standing around 5ft or more in height, the majority are very man-like in appearance, but a few possess abnormal features - a large bald head, oval eyes, pale skin, antenna, claw-hands, etc. The so-called "Nordic" is a particular class of human-like entity, tall and pale-skinned, with a high forehead, long blond hair and attractive (sometimes androgynous) facial features. They closely resemble the entity purportedly seen by George Adamski in 1951, but sightings of this entity-type are also claimed by many "non-contactees".

Observations of entities standing 7ft or more in height are claimed on rare occasions. These so-called giants are mostly humanoid in form, but have a tendency towards possessing markedly outlandish body-features (such as glowing, single or trinal eye arrangements, or abnormally proportioned/shaped body members).

The previous three general classes of UFO humanoids are reportedly dressed in a wide variety of clothing. Skin-tight cover-all, cat suit or jumpsuit-like attire is especially common. Alternatively, entities may be clad in a "diving-outfit", "Michelin-man like costume" or "spacesuit". The head may be either exposed, or enclosed within a "goldfish-bowl" or motorcyclist-type "helmet". UFO entities have a marked tendency towards luminosity, often stated to be either "glowing" or illuminated by externally carried lights.

A small proportion of entities (often termed exotics) cannot be fitted into any of the above-mentioned categories. These include beings resembling mythical creatures, e.g. bat-like humanoids, man-apes, goblins, fairies, dwarves, or trolls and also the occasional non-humanoid, such as those with blob-like, "praying-mantis", oblong, spherical or tubular body- configurations.

THE ABDUCTION EXPERIENCE: AN IN-DEPTH VIEW

"Abduction" is the popular (and, amongst ufologists highly controversial) title given to a form of close encounter experience that has almost dominated ufology and popular conceptions of the subject in recent times.

The majority of abduction claims initially spring from experiences of missing time, a mysterious gap in an individual's recollection of events, covering intervals ranging from 10 minutes up to an hour or more. This may occur in any environment, a bedroom, a car or whilst the participant is outdoors. It may (or may not) be preceded by a consciously recalled "UFO" sighting or other anomalous event. Shortly afterwards, not previously-noticed scars may be discovered and anomalous nosebleeds may occur. Vivid dreams with a notable UFO content are also experienced, at least portions of which resemble any subsequently "recovered" abduction memories.

Sometimes, instead of an instance of missing time, a strange, often incompletely recalled event may be reported, whose recalled duration may not equal the actual amount of time elapsed. Some UFO researchers term this phenomenon "screen memory" as, following one or more hypnosis sessions, an abduction narrative is often recalled in place of the previously reported anomalous experience.

In an attempt to discover what happened during an interval of missing time, some individuals undergo a procedure called regression hypnosis. This involves a qualified hypnotherapist placing the person concerned into a state of deep, sleepy relaxation (via the use of repetitive but gentle suggestion). The hope is that this artificially induced altered state of consciousness will break down any "barriers" hindering memory of the time in question.

When the participant is placed in a hypnotic trance, the period of missing time is often "resolved" into an alarming, prolonged encounter with strange non-human (but usually humanoid) entities. This experience often begins with the participant being escorted into a UFO, usually against his or her will. If the person "recalls" initially being in a room (or other enclosed space), both themselves and any accompanying "entities" are often stated to pass, in a ghostly fashion, directly through any intervening windows or walls! Whatever the situation, the participant is often reported to float as if weightless, either when being inducted into an airborne UFO or at other times during the "encounter". Interestingly, the actual entrance to this other environment is rarely recalled, even under hypnosis, and has led researchers to coin the term "doorway amnesia".

Following this period of transition, the participant is then taken to a room, where something akin to a medical examination purportedly takes place. This area is usually stated to be sparsely furnished, containing only those items used during the encounter. The participant is placed (sometimes even secured) onto what is variously described as a "table", a "bed" or a "chair". An examination, often exclusively focused on the head and/or lower abdominal regions then occurs, utilizing devices often compared to scanners or probes. During the examination, the entities may allegedly take samples of blood, hair, skin and genetic material; the enactment of these procedures is often associated with notable sensations of fear or pain. In some instances, a participant may report that the entities insert a small "implant" into his or her body (usually up his or her nose).

The extent of communication between a participant and entities during abduction experiences varies considerably. Sometimes the entities are said to ask questions about mankind and life on earth, responding to the witnesses in a surprisingly humanlike way. They are often stated to "talk without speaking", using a form of mental communication comparable to telepathy. In other accounts, the entities are uncommunicative and impassive, treating the participant much like a biologist examining a living animal specimen. An entity may at some stage during the experience stare intently at the abductee for a prolonged period, allegedly probing his or her thoughts via a telepathic mind scan. The witness may also be shown on a monitor or screen images of stars, the earth, other alien worlds and other more cryptic and often gloomy scenes.

Abduction accounts are often very surreal in their content; the entities often make cryptic statements, act in a very outlandish manner, or the recalled memories of the encounter may inexplicably "jump" to other unconnected events. The witness may recall (when regressed) that the entities enacted a procedure to make him or her forget the encounter. The experience then ends with the witness being returned to his or her initial location (or a short distance elsewhere). In the aftermath, the participants may develop a more spiritual, "New Age" attitude to life, often associated with burgeoning alleged psychic abilities. It is also common for "memories" to surface of previous abductions, particularly of instances during the witness' childhood.

It is not unknown for abduction claims to involve more than one person, either at the initial stages or, less often, to be uncovered during later investigation. More than several accounts detail the abductee being taken before other people who appear to be "frozen" in time and are thus unable to recall anything happening.

Despite their popularity, abduction claims have been extensively criticized on a number of counts. Despite common belief to the contrary, regression hypnosis is most definitely not an infallible method for recovering authentic memories, nor is it a "truth serum". An experiment in 1977 conducted by Drs. William McCall and Alvin Lawson created (via the use of mild leading questioning) detailed, but false, "abduction" narratives in various hypnotic regression subjects. The fact that an altered state of consciousness has to be relied upon to "recover" details of many, if not most abductions throws their objective reality open to considerable doubt. Furthermore, due to their very nature, abductions are often difficult to authenticate, with the "aliens" being able to fabricate false memories, to freeze everyone in time except the abductees and use "implants" which turn out, on examination, to be terrestrial in nature. There are also some noticeable flaws with the technology attributed to abduction aliens, who, although supposedly able to pass through walls, have to physically cut and probe witnesses to acquire biological samples!

Attempts to discover differences between abductees and non-abductees have met with mixed results. It is generally agreed that the majority of abductees are psychologically normal. Possible links with the "fantasy-prone personality syndrome" have so far proved inconclusive. Some have detected a slight tendency in close encounter witnesses towards creativity and a greater-than-normal level of traumatic life-experiences.

A number of conditions and mental effects have been proposed to account for abductions. A condition called temporal lobe epilepsy has the potential to explain at least some "borderline" cases. There also appears to be a link with sleep paralysis and hypnagogic/hypnopompic illusions (powerful and very realistic hallucinations occurring on the verge of sleeping and waking). Some experiments have shown that exposing a subject's brain to mild electrical stimulation can trigger basic neurological sensations. The extent to which these concepts will explain some, or even all abduction events is currently uncertain, requiring further and extensive research.

INDIRECT UFO EVIDENCE

Throughout its existence, the UFO study movement has been engaged in an earnest quest for incontrovertible evidence of UFO reality. Unfortunately, the UFO's transient nature excludes it from detailed analysis under laboratory conditions. Therefore, ufological research is mainly restricted to less direct forms of physical evidence, e.g. photographic images and RADAR detection of UFOs.

UFO Photographs And Films

Photographic images of UFOs are a valuable form of evidence, even though, in isolation, they cannot conclusively "prove" their reality. In cases where photographic evidence exists, researchers are freed from a total reliance on eyewitness testimony. Providing the UFO image is not taken against a featureless sky-scape, a picture can aid the reasoned assessment of a sighting in a variety of ways. For example, the alleged time of a sighting can be verified (or refuted) through objective analysis, by examining the shadows and lighting present within a photograph. In the case of a series of pictures, prevalent lighting can also be used to determine how far apart in time they were actually taken. At the very least - once photographic defects and hoaxes are eliminated - a UFO picture indicates that something was physically present during a particular incident.

In regards to evidential value, a proven sequential series of still photographs are more useful to UFO research than a single image, with changes in a UFO's motion and viewing angle being apparent. Motion-picture evidence is even more cherished, with its ability to permanently and objectively represent a phenomenon's trajectory (potentially the most anomalous aspect of a UFO's behaviour). The introduction of camcorders in the mid-1980s resulted in many motion images of supposed UFOs being submitted to investigators. However, videotape lacks the fine resolution of even average quality "still" film. This is further compounded by the fact that most camcorders are not designed to record images of distant light-sources at night, as is often the case with UFO incidents. Other drawbacks are less obvious. For example, camcorder "auto-focus" settings often have difficulty in precisely resolving distant points of light, with the image (as a result of incidental defocusing) assuming a spurious diffused circular or diamond shape.

The circumstances underlying many photographic incidents conspire to markedly reduce their evidential value. Often, the UFO appears as a mere dot of light against a featureless sky. The virtual lack of spatial references in such a picture makes reasoned assessment of it almost impossible. Furthermore, many nocturnal UFO photographs are often severely distorted by camera shake (involuntary hand tremor), causing the UFO's image to resemble an erratic, convoluted luminous swirl. Finally, it is commonplace for UFO pictures to be poor in photographic quality, the features within a picture being indistinctly defined. However, this is not automatically a point against authenticity. It should be remembered that the majority of UFO pictures are taken by non-professional photographers at night, using quite basic equipment under stressful circumstances.

Contrary to popular opinion, most claimed UFO photographs are not hoaxes, but actually depict IFO phenomena such as birds, meteors, missile tests, vapour trails or

weather balloons. Additionally, a host of equipment defects and effects can generate spurious UFO-like images. For example, an irregular white or dark "blob" may appear on a print during its development (either the result of minor chemical staining or dust contamination). Reflections of a bright light-source (e.g. a lamp or the camera's own flashlight) onto a window and lens flare (an off-angle reflection of the sun upon a camera lens) have both instigated a considerable number of spurious UFO photographic cases. This is also the case with accidental double exposure, where images from two different "shots" are superimposed onto one negative. This results from a photographer (or camera) not winding on the film after taking a picture. A good indicator that a photographic defect is potentially responsible is that nothing untoward was observed when the picture was taken, the anomalous image only discovered on the film being developed.

Hoaxing is also a notable source of false UFO photographs. Although less numerous than images of IFOs or photographic defects, they are featured more often within the UFO literature due to their more sensational appearance. Hoaxes may be perpetrated for financial reasons, but are more often simply attempts to fool the experts or gain publicity. It is relevant to note that many UFO photographic hoaxes have been perpetrated by children. A diversity of fabrication techniques is available to the would-be UFO faker. A crude, but often surprisingly effective method involves photographing a background scene through a window (or other transparent medium), upon which a cutout paper or painted-on "UFO" is placed. This produces a fairly convincing if somewhat dark UFO-like image. Small model UFOs are also employed in pictorial hoaxing attempts. A Frisbee, hat or hubcap thrown into the air, or attached to a (out-of-picture) support by thin wire can produce fairly convincing still photographic images. These effects look convincing because a small model placed close to a camera has the same apparent angular size as that of a much larger and more distant object.

The photographic darkroom also provides a hoaxer with further methods of fabricating UFO pictures. Deliberate double exposures (superimposing the image of one film negative onto another) produces some of the most realistic-looking fake UFO images attainable. This process has become much simplified with the introduction of powerful, inexpensive personal computers. Certain graphic-imaging programs allow a realistic digitally generated "UFO" to be superimposed onto an actual background shot. They are also capable of producing a totally synthetic picture, such as a UFO and landscape with shadow-features specifically composed to substantiate a hoaxed sighting account.

Fortunately, there are many ways of detecting all these hoaxing techniques. A close-up model will appear to be quite sharply defined, but the background will be somewhat out of focus. An unnaturally dark image also indicates the same situation (as less light falls upon it in comparison with an object a greater distance away). A cutout UFO stuck onto a glass plate is nearly always surrounded by a noticeable, whitish "halo" running round its edge. In regards to a double exposure originated UFO image, its "contrast" nearly always markedly differs with that of other features on the photograph (the UFO and the backdrop being shot under different lighting conditions). A good way to check for all kinds of hoaxes, in particular superimpositions, is to examine the negative to determine whether it shows any sign of tampering. If possible, the whole reel of film that contains the UFO image(s) is

examined, both to determine if they appear in the order claimed by the witnesses and for comparison with the other, non UFO-related exposures.

Without doubt, computer imaging is the most powerful photographic analysis technique available to ufologists. This a battery of separate assessment processes similar to those used by NASA to enhance pictures taken during their remote planetary survey missions. This technology, once very expensive and accessible to only a few, is now, with the advent of powerful home computers, becoming much more widely available. Initially, a UFO photograph is scanned and reproduced digitally, each pictorial element represented by a tiny graphic data "bit" called a pixel (a word derived from Picture [x] Cell). The resulting encoded image can then be easily enlarged, its ambient contrast altered or specific picture elements colour-coded (in order to better define features such as shading on a UFO). Edge profiles of images within a photograph can also be enhanced, a method useful in detecting the presence of wires associated with a fake UFO. Furthermore, precise scalar (and other) measurements of pictorial features are made possible, it thus being able to determine whether a UFO appears to be dulled by atmospheric haze which, if so, indicates it was a substantially-sized and fairly distant object.

In the late 1970s Ground Saucer Watch (GSW), an American UFO study group who pioneered the computer analysis of UFO photographs examined 1100 alleged UFO pictures with these techniques over a period of six years. On the conclusion of this survey only 45 pictures from that sample were deemed to be authentic.

Early Photographs Of Aerial Anomalies

Purported photographic images exist of all the notable pre-UFO era aerial anomalies. An alleged picture of the American "mystery airship", taken at Chicago on the 10th April 1897 was later admitted to be a hoax involving a wire-suspended model, shortly after it was publicised by the news media of the day. There are several alleged photographs of Foo Fighters on record, unfortunately none of which have been authenticated. The only known photograph of a supposed "ghost rocket" was taken in Sweden at about mid-afternoon on the 9th July 1946. However, this incident, which was observed over a considerable area of that country, was probably instigated by a bright bolide meteor.

One of the first photographs of the modern "flying saucer" era was reportedly taken at Phoenix, Arizona USA at around 4.00pm on the 7th July 1947. The circumstances surrounding this image of a heel-shaped UFO (similar in form to that observed by Kenneth Arnold) are somewhat vague, the picture being neither validated nor explained as a result.

Classic UFO Photographic Cases

At McMinnville, Oregon, USA at around 7.45pm on the 11th May 1950 a farmer and his wife claimed to have observed a silent, slow-moving shiny disc, with what resembled an off centre pole protruding from its top. Two pictures of this UFO were

allegedly taken during the course of this sighting. The UFO shown in these photographs is similar to another UFO depicted in a shot taken at Rouen, France in March 1954. Ground Saucer Watch evaluated the McMinnville pictures as authentic during the 1970s. Their findings suggest that the UFO was around 20-30 metres in size and about a kilometre or more from the witnesses. Sceptics have questioned this conclusion, pointing out possible inconsistencies in ambient shadow-features, suggesting the pictures were taken in the morning rather than in the evening, as claimed by the witnesses. They feel the UFO is actually a small model suspended from a wire whose diameter falls just below the resolution of the computer enhancement methods used to assess the photographs.

At about 12.15pm, on the 16th January, 1958 a Saturn-shaped UFO moving at high speed was reportedly observed and photographed from the deck of the Almirante Saldanha, a Brazilian Navy ship located in the South Atlantic Ocean, just off the coast of Trinidad Island. The four photographs showing the passage of this UFO still remain unresolved and highly controversial to this day. These pictures were also deemed authentic by Ground Saucer Watch, but many still remain sceptical of their validity. The cameraman is known to have quite openly previously faked pictures for an article debunking some UFO photographs taken at Barra de Tijuca, Brazil in May 1952. This suggests that he was sufficiently skilled to have fabricated the Trinidad island photographs via superimposition techniques. Furthermore, it is unclear whether this object was as widely observed by the Almirante Saldanha's crew as some reports infer.

Classic Cinematic UFO Incidents

In regards to cine films of UFOs, two originating from the early 1950s and one taken in 1978 still remain noteworthy to this day.

On either the 5th or 15th August, 1950 at Great Falls, Montana, USA at around 11.25am a motion-camera film was taken of two silvery, reflective oval objects moving swiftly in a south westerly direction. It is known that, at around the time of this incident, two aircraft were airborne on the 15th August in the sighting's vicinity. It has therefore been suggested that the film shows these aircraft, their appearance distorted by reflected sunlight. Although the main witness was uncertain of the precise date of this incident, he did claim to have seen aircraft in conjunction with the UFOs. The situation is made more complex as it is known that no aircraft were airborne near that area on the 5th August (which subsequent research favours as the actual date of this event!). Despite this confusion, three separate examinations of the Great Falls movie all suggested it was authentic, that the objects were some distance from the observers and that their circular shape was actual, not the result of solar reflection effects.

The second classic "UFO-movie" was taken near Tremonton, Utah, USA, at approximately 11.10am on the 2nd July, 1952. It depicts around 10-12 white ovoids of fluctuating brightness "milling around" against a featureless sky (reportedly) over the eastern horizon. These UFOs, widely spaced apart in fairly close groups of two, were eventually lost to sight as they moved to the west. It is quite possible these

UFOs were actually gulls reflecting sunlight, although questionable estimations of their speed range from 760 to 12,167 kph, depending on their assumed distance from the observers.

At Wellington, New Zealand, on the 30th December, 1978, an Australian journalist and his film-team joined the crew of an Argosy cargo plane, to make a short documentary on a UFO event experienced by those aboard it some nine days previously. Just after midnight on the 31st December 1978, whilst the aircraft was bound for Christchurch, strange, intermittently visible lights were initially spotted and filmed, and continued to be seen for a further 50 minutes thereafter. The presence of seemingly unknown objects in the plane's vicinity was also tracked on RADAR at the same time. Following a refuelling stop in Christchurch, the aircraft took off again, bound for Blenheim. Several minutes into this flight, at around 2.15am, further unusual lights were again observed from the aircraft. At about 2.24am, a large luminous object described as resembling a "flying saucer" was sighted and spasmodically filmed for around eight minutes. Other unusual lights were seen almost until the aircraft touched down at Blenheim at about 3.10am. Again, various RADAR systems located on the ground and in the aircraft had seemingly detected the presence of numerous unknown airborne "targets" throughout this leg of the flight.

The images taken that night by the film crew were subject to an extensive examination by, among other technical experts, optical physicist Bruce Maccabee, who came out strongly in favour of them being inexplicable aerial phenomena. From the time it was first revealed, several theories have been proposed to account for the New Zealand film. It is variously proposed that the UFOs were mundane terrestrial light sources, squid boats, the planet Venus or mirages of either astronomical objects or ground features. The RADAR images are explained as spurious returns induced by atmospheric refraction effects, or returns from the ground mistakenly perceived as airborne sources during the excitement of the diverse UFO observations. None of these solutions has yet to be conclusively proven, but all still remain potentially viable.

Famous Flying Fakes

Not surprisingly, ufological history is littered with examples of probable or suspected hoaxed photographs. What follows is a brief worldwide run-down of the more notorious faked UFO pictures.

The image of a domed, saucer-shaped UFO appearing in five daylight photographs taken at Barra de Tijuca, Brazil on the May 7th, 1952 is strongly suspected to have been fabricated via superimposition. Six photographs taken in New Jersey, USA on the 29th July 1952 are thought to show a hat tossed into the air. Deliberate superimposition techniques were probably also responsible for a UFO picture from Taormina, Sicily taken in the summer of 1954, showing several people "watching" two inverted, aerial, domed discs.

Many of the 1950s contactees used photographic evidence to substantiate their entity encounter claims. These range from often unimpressive-looking images of flying

saucers to equally unimpressive images such as those taken by Howard Menger in 1953 of a shadowy figure standing before a supposed spacecraft. The most prominent of the contactee photographs were those taken by the first of their ilk, George Adamski. Some of them are claimed to predate his alleged 1952 encounter with an entity from Venus. This includes a photograph of a dark, cigar-shaped "mother-ship" surrounded by several luminous blobs. But his most renowned pictures were a series of close-up shots purporting to show a Venusian scout-ship, taken just after his 1952 "contact". This image of a bell-shaped UFO with an under section comprised of three small inverted domes located around a larger central bulge has since become famous throughout the world. Whatever the truth behind Adamski's numerous (and highly dubious) claims, UFOs closely resembling his scout ship have been allegedly observed (and photographed) by other independent, non-contactee witnesses.

Four photographs of a hat-shaped UFO taken at Santa Anna, California, USA on the 3rd August 1965 were once highly regarded within ufology. However, investigators from the University of Colorado UFO Project were able to duplicate them fairly closely, using a small model hung from a wire. About 10 years later these pictures also failed a computer enhancement test conducted by Ground Saucer Watch. On the 9th January 1966, at Lake St. Clare, Michigan, USA two teenage boys claimed to have photographed a dark, lenticular UFO with an antenna protruding from its rear. Again, they were widely believed to be authentic. In the 1970s the "witnesses" later confessed to fabricating them, using a model hung from a thread. Much less convincing were three photographs depicting a hat-shaped UFO taken by an Ohio barber on the 13th November 1966. Almost from the onset, UFO investigators noted major inconsistencies in the pictures' frame-numbers when compared with the order in which they were reportedly taken, and shadow-features that were inconsistent with the incident's claimed time of occurrence. Several pictures of a white tub-shaped object taken on June 1st 1967 at San Jose de Valderas, Spain were, some years later, proved (via the use of computer enhancement technology) to be a model suspended from a wire.

In comparison with hoaxed pictures, fewer IFO-based photographs have assumed the status of "classics", mainly due to their less impressive appearance. The "Fortune Photograph", taken on October 16th 1957 near Alamogordo, New Mexico, is now commonly accepted to show a lenticular cloud. A picture of a group of four luminous ovals taken at Salem, Massachusetts on the 16th July 1952 are probably ceiling lights reflected onto a windowpane.

The Uncertain & Unconfirmed

There are also many UFO photographs that remain unresolved to this day, due to the various uncertainties that surround them. An illuminated form photographed by a 14 year-old boy at Tulsa, Oklahoma, USA (but reportedly witnessed by others) on the 2nd August 1965 looks interesting, but shows a somewhat indistinct image against a featureless sky. Another taken around 1954 near Edwards Air Force Base, USA of a small disc located behind the tailfin of a B-57 bomber is more clearly defined, but the circumstances surrounding its taking (and the identities of those who photographed it) remain unknown to this day.

Sometimes, confusion can result from inconsistent photographic testing results. On the 3rd July 1967 at Calgary, Alberta, Canada two pictures were taken of a disc reportedly observed by several witnesses. Monochrome prints of these photographs passed a Ground Saucer Watch examination conducted in 1976. In 1977 GSW discovered that the Centre Of UFO Studies possessed colour versions of the Calgary pictures, and as a result that organization sent GSW copies of them for computer analysis. The colour print of the first picture passed their scrutiny, but GSW described the second as being "the crudest attempt at a hoax" they had ever seen. Later, these conflicting findings were explained as resulting from the print of the second picture being accidentally blurred during copying and also to them being separated and assessed at two different locations. This example shows that, for all its advantages, computer enhancement techniques are not absolutely foolproof.

A photograph taken near St. George, Minnesota, USA of a UFO said to have been witnessed by five people at around 6.10pm on the 21st October 1965, is one example of how several elements of uncertainty can work to the detriment of a UFO picture. Although this image of a fuzzy luminous disc looks quite convincing, again it is taken against a (near) featureless skyscape. Furthermore, the photographer's statement regarding the UFO, which describes a physical, metallic object appears inconsistent with what is actually depicted in the photograph. Controversy also still rages over whether two luminous blobs located just below the "object" are stars, satellites or just incidental marks on the film.

UFO Photographic Cases In The British Isles

There are a substantial number of alleged British UFO photographs, but few have gained the status of "classics" due predominantly to most UFO books being written from an American perspective. The vast majority of these, sadly, are proven or suspected hoaxes.

One of the earliest English UFO photographs was reportedly taken by a 13-year old boy at Coniston, Cumbria on the 15th February 1953. It shows a blurry image bearing a very close resemblance to George Adamski's "Venusian scout ship". As a result, most ufologists dismiss the photograph as a hoax, but the witness, when questioned in 1995 still maintained it was genuine. The book "Flying Saucers From Mars" (detailing a supposed February 1954 encounter between a Mr. Cedric Allingham and a "Martian" in the Scottish Highlands) features several, very unconvincing pictures of the entities' domed, saucer-shaped "spacecraft". These images are, in all probability, extreme close up shots of a small model.

In February 1962 a 14 year-old boy claimed to have photographed a hovering formation of five domed discs at Mosborough, Yorkshire. A decade later the witness admitted to hoaxing this picture by photographing an outdoor scene through a glass plate, upon which the group of "UFOs" had been painted. In the evening of the 29th August 1965, at Warminster, Wiltshire (during a "wave" of UFO reports focused around that town) a 19-year old male reportedly photographed a fast-moving domed disc against a featureless sky. The authenticity of this picture remains a matter of notable controversy, although the photographer still claims it to be authentic. Two women at Cappoquin, Eire, claimed to observe a glowing elliptical UFO at about

3.15-3.30pm on the 26th December 1965. One of the witnesses managed to take a photograph of the phenomenon just before it was lost to sight. Its veracity remains undetermined to this day. At Conisborough, Yorkshire, around 8.30pm on the 28th March 1966, a young boy (with four other members of his family) reputedly photographed a "throbbing", hovering orange light. When developed, the resulting picture did not show a luminous body, but a formation of 3 dark domed discs. Today, most British Ufologists agree it is a fake, involving "cut-out" UFOs stuck onto a transparent surface and then photographed.

At approximately 12.00pm on the 26th October 1971 at Enstone, Banbury, Oxfordshire, an Anglia Television camera crew (in the course of shooting a countryside documentary) observed a stationary round silvery object, which suddenly ejected a "contrail" as it moved away towards the East. It was later discovered the UFO had been observed over a considerable area by other independent witnesses. This event is now believed to have been instigated by a high-altitude aircraft illegally dumping aviation fuel. The static phase is attributable to the plane coincidentally traversing along the witnesses' line of sight.

On the 11th January 1973 a luminous orange sphere was filmed 6.5 kms. south west of Thame, Oxfordshire at around 9.05am. The same "object" was also seen by some primary school children and a teacher located several kilometres away at the villages of Chilton and Shabbington. Near the time and location of these sightings it is known that a malfunctioning F-111 aircraft had been incinerating dumped fuel with its afterburners, prior to a planned (but later aborted) emergency landing. The UFO incidents are therefore attributable to the ignited plume of aviation gas then being emitted by this aircraft, which eventually crashed at 9.46am, some 30km away, near what is now Milton Keynes. Another film, taken in October 1977 close to the Stonehenge Neolithic monument probably shows flares, the region around this ancient site being heavily used for military exercises. However the witnesses have disputed this explanation, alleging the lights caused severe effects on themselves and upon various electronic and mechanical devices.

On the morning of March 16th 1981, at the village of Cracoe, North Yorkshire, several individuals (including two police officers) witnessed a static grouping of three intense white lights, situated by the side of a distant, craggy fell. Six photographs of the phenomenon were taken during the course of this almost one hour long incident. Several years later these "lights" were found to have resulted from solar illumination reflecting off exposed, damp quartz-bearing rocks. More recently, on the 5th August 1987 at around 5.00am, a slow-moving, dark domed-disc UFO was reputedly photographed in Barnsley, Yorkshire. Photographic analysis from several individuals and organizations (including Ground Saucer Watch) indicates this picture probably shows a cutout image stuck onto a window. However, the photographer disputes this evaluation.

In March 4th 1989, (due to a wave of "UFO" sightings in NW London and SW Hertfordshire mainly instigated by the Virgin Airship) Hertfordshire police redirected a traffic monitoring video camera situated near Junction 6 of the M-1 motorway. On four separate occasions during this period the camera recorded images of unusual moving lights, and also two static aerial light-sources that were continuously visible in the distance. The stationary lights were subsequently identified as Mars & Venus. The

moving lights are thought to be aircraft, shuttling to and from Heathrow aerodrome. Around 7.44pm at Corby, Northamptonshire, on the 7th May 1994, a family observed (and filmed with their camcorder for almost five minutes) a hazy, slow-moving silver and black coloured elliptical object with "round bubbles" located around its outer rim. A subsequent investigation discovered the "UFO" was probably a cluster of birthday-party balloons.

UFO Entity Photographs Worldwide

A genuine UFO entity photograph would be a major step in proving the physical reality of such beings. Surprisingly, quite a substantial number of supposed UFO entity photographs do exist; unfortunately most (if not all) are probable hoaxes.

The first UFO entity photographs originate from the early 1950s, allegedly showing dead (or captured) "aliens" in the presence of one or more humans. One, which first appeared in an April 1st, 1950 edition of a German newspaper, depicts a single-legged "alien" with a bulbous cranium being "escorted" by two American soldiers. This photograph is a proven hoax, involving somewhat crude airbrush doctoring of a pre-posed image. The other, said to originate from an early 1950s UFO crash occurring near Mexico City, shows a tiny humanoid being held by two trench coated men, with two women standing behind them. It is almost certainly a hoax (again perpetuated by a German newspaper), the "alien" probably an image superimposed onto some people grouped around a pram.

At around 9.30am on 31st July 1952, eight photographs were reportedly taken in the Bernina Mountains, Italy of a landed domed-disc shaped UFO and an adjacent space-suited entity. These pictures are generally accepted to be a hoax, involving a scale model backdrop, "UFO" and "alien". A white-suited figure not seen by anyone present at the time appeared in a photograph of a young girl taken in Cumbria, England on the 23rd May 1964. A recent examination of this picture has found indications of the unseen figure having been deliberately placed within it by superimposition techniques. However, the photographer strongly denies having fabricated this image.

On October 17th 1973, following an alleged landing of a UFO just outside Falkville, Alabama USA, a police chief took four pictures of a silver-suited figure, which then reportedly ran away at incredible speed. These images have never been conclusively explained, but could depict an individual attired in a protective fireproof outfit. Another picture, first surfacing in the 1970s, is said to show a dead entity inside a downed UFO. In reality it probably depicts a badly burned human air crash victim, a quite terrestrial-looking pair of spectacles being visible to the left of the body.

At around 7.45am on the 1st December 1987, a male walking on Ilkley Moor, West Yorkshire, England reportedly photographed a green-coloured "entity" scrambling up a hill, to a "UFO" reportedly just hidden behind an adjacent knoll. The resulting image is intriguing, but is notably underexposed. Following this observation, the witness claimed to experience a period of "missing time" of just less than 2 hours. Additionally, a magnetic compass reputedly on his person at the time was later discovered to have permanently reversed its polarity. In the course of a later hypnotic

regression, the witness recounted a UFO entity contact experience, occurring during the interval of "missing time". Some researchers suggest the picture shows an insurance salesman known to have regularly walked the moor on visits to local clients. The case's main investigators reject this explanation, on the grounds that the salesman was not present at the sighting location during the time and date of the incident.

Since the 1990s several photographs of "dead aliens" have surfaced, most notably in Russia and Japan. All these images (to date) are known to show human-sized manikins, speculative reconstructions of deceased extraterrestrial beings supposedly retrieved from UFO crashes.

One alleged UFO entity film - the so-called Santilli Movie - caused a minor media sensation on its first public showing in May 1995. Raymond Santilli, then managing director of the Merlin Group, a producer of videos, music tapes and books claims to have accidentally discovered it in 1993, while in America seeking early footage of rock and roll giant Elvis Presley. What is commonly termed the Santilli movie or Alien Autopsy is, in actuality, said to comprise around 20 silent black and white motion film-reels. They were purportedly taken by an ex-military photographer, who somehow managed to keep the original (undeveloped) film canisters in his possession for 46 years. They are reputed to show the examination of alien bodies and artefacts recovered from a UFO crash occurring near Roswell, New Mexico, USA in July 1947.

One alleged section of this footage, the first seen by independent ufologists, shows two men in white coats with one person in the background inside a poorly lit tent or cabin. They appear to be taking tissue samples from a partially sheeted body lying on a table. Two other sets of footage seemingly depicts the autopsy of a large-headed humanoid entity with six fingered hands, conducted by two men dressed in biological/radiation protection suits. During the course of the "dissection", black "membranes" are removed from the entity's eyes, its torso, abdomen and skull are opened up and various (unrecognisable) organs removed. A further section of footage allegedly shows wreckage taken from the entity's crashed UFO. This comprises irregular slabs of metal (indented with several life-size impressions of a six-fingered hand) and "I-beam"-like fragments adorned with hieroglyphics.

As of 2005 (with the investigation of this movie still ongoing in some quarters), the current balance of evidence strongly suggests this footage was created sometime in the recent past, most probably for a sci-fi documentary video. The "alien" bodies are probably custom-made latex manikins derived from a body cast, with hollow internal sections filled with organic-looking matter to render a convincing "autopsy" effect. The film of the "UFO" fragments is equally questionable, the displayed wreckage being totally unlike that described by the witnesses of the actual Roswell debris. Suspicions are further aroused by a shot of an "I-beam" section upon which is depicted "hieroglyphics" closely resembling the English words "Video TV". As with other ufological controversies, some technical experts have stated the film is genuine, others that it is a definite fabrication!

RADAR And UFOs: Some Basic Principles

RADAR (the acronym of Radio Detection And Ranging) is a remote sensor system which first entered use during the late 1930s. In grossly simplified terms its mode of operation can be described as follows. A rotating transmitter broadcasts a narrow stream of radio waves, a proportion of which are reflected back to the transmitter by any sufficiently solid object falling within that unit's range. This return signal, or echo, is then received by the RADAR system and shown as a dot-like blip upon a display unit called a Plan Position Indicator or Scope. By measuring the delay between the transmission of the radio signal and the receipt of the echo, an object's distance from the RADAR dish, and other data such as its speed, can be precisely determined. A blip's brightness depends on the strength of its echo, which itself is governed by the composition of the detected object. So-called "Stealth" aircraft utilize materials and surface configurations that produce a much smaller RADAR signature than is typical for an object of its size.

Despite its great value as a defensive, navigational and research tool RADAR has several inherent deficiencies. To begin with, it can only show actual structural details of objects much bigger than an aircraft, which themselves only appear as a small, anonymous dot upon a RADARscope. Furthermore, at some ranges, a group of objects at the same distance but at slightly different altitudes will be shown as a single large blip, until they move a greater distance apart.

RADAR is utilised for a variety of tasks. RADAR systems using specific radio frequencies are used to detect clouds, rain-belts, birds and insect swarms (whose echoes are less defined on units designed for air traffic control purposes). These differing RADAR systems all possess their own unique range and coverage characteristics, and are prone to specific sorts of spurious targets and atmospheric effects.

For ufologists, the most important RADAR systems are those used for aircraft flight management. Airport control towers monitor aircraft within their designated airspace (or Terminal Control Area (TMA)) passing them onto Air Traffic Control Centres (ATCC) once they move out of their jurisdiction. Air traffic activity on the average TMA/ATCC RADAR scope is such that a controllers' attention must be confined only to commercial flights. Those "returns" of no concern to them are ignored, unless they violate flight-zone regulations, move in a highly anomalous manner or trigger a conflict alert by moving too close to another aircraft.

Modern air-traffic control RADAR is equipped with a data processing filter called a Moving Target Indicator (MTI). When activated, an MTI removes all non-relevant returns, or clutter (such as elevated ground features) from a RADAR display. A RADAR system reverts to a primary setting when the MTI is switched off, resulting in all detectable objects appearing upon a unit's scope. Secondary RADAR depends on a transponder, a specialized radio transmitter carried by all commercial and most private aircraft. This device broadcasts the aircraft's call sign, altitude and destination to a RADAR unit, which then displays this data on its Plan Position Indicator.

It is well known that anti-ICBM defence RADAR systems, such as those utilized by NORAD, often register "unknown" returns (termed UCTs, or Uncorrelated Targets).

As far as is publicly known, no work has ever been conducted to determine their actual identity. Officially, they are deemed to be generated by mundane objects such as meteors, satellite re-entries and launches.

Most ufologists prefer RADAR cases where an anomalous return is noted in conjunction with a visually observed UFO. This is because RADAR can be fooled by a variety of atmospheric conditions, or even malfunctions within the RADAR mechanism itself. Under certain atmospheric conditions anomalous propagation can occur. This effect, induced by temperature inversions, causes ground features not normally detectable by a RADAR set to temporarily appear on its scope. On some RADAR sets, a "ghost" signal of an already "ranged" object is sometimes detected close to the originating target, precisely mimicking its motion(s). Angels are the semi-official term for a specific class of natural RADAR return. Typically, this phenomenon manifests on a RADAR scope as an erratically moving and intermittently visible return. They are variously thought to be caused by moving pockets of air whose temperature differs to that of the surrounding environment, swarms of insects or electrically charged atmospheric particulates.

The existence of all these phenomena emphasises the need for apparent RADAR detections of UFOs to be associated with a visually observed stimulus. Even in those instances, the possibility of a false return always renders this form of UFO evidence open to some doubt. There are many cases where a UFO is not detected by an adjacent RADAR unit, such as was the case with the 1991 Manchester UFO air miss. The reasons for this are potentially manifold. For instance, a UFO could be for some reason a poor reflector of RADAR waves. If so, it could not be comprised of electrically charged gases, such as is the case with conventional "plasma", as these produce very clear RADAR returns. More prosaically, the UFO's presence could be effectively deleted by RADAR filter systems, or it could be much further away than it appears. Even with all the technical advances over the past 50 years, the human operator remains the key element of any RADAR system. In order to judge the outlandishness of any unusual return, an operator must be both well versed in the equipment he or she is responsible for, and be acquainted with how local conditions commonly affect a given RADAR unit.

RADAR-UFO Encounters

Why are RADAR-UFO cases so important to UFO research? As with photographs, a validated RADAR detection of a UFO goes a considerable way to proving its material nature. Secondly, and more importantly, they provide an objective assessment of a UFO's speed and trajectory. The motion attributes of UFOs in the more notable RADAR-UFO events are identical to those reported in conventional visual sightings; sustained or sudden bursts of rapid speed, long-duration hovering, and swift tight-angle turns. Consequently, such instances go some way to demonstrating that these UFO motion aspects are actual, and not attributable to subjective factors. In the 1960s the Director of Project Blue Book was asked to state (under oath) whether the project had any unexplained RADAR cases on record; he replied that it did not. It is true that most RADAR-UFO events in the Blue Book files (such as the Lakenheath/Bentwaters incident) are listed as resolved. However, the explanations cited for some of these

cases (again, such as with the Lakenheath/Bentwaters event) have been deemed highly unlikely by several notable RADAR experts.

On the 19th-20th July, 1952, around the vicinity of Washington D.C, RADAR units located at Washington National Airport and Andrews Air Force Base detected anomalous targets performing a variety of manoeuvres (hovering, flying in formation, as well as a rapid 90 degree turn). Several lights were seen in association with the RADAR returns, but F-94 jets sent to investigate them found nothing on reaching the area. RADAR detected another unknown target in the same region a week later. Again, an aircraft was sent to investigate. The pilots involved observed a light in the region that seemed to be engendering these RADAR returns. However, on being observed, the light appeared to move away from this vicinity at very high speed. These events are now held in lesser regard by ufologists than they once were, it now being generally accepted that the RADAR returns are explicable in terms of anomalous propagation.

At West Freugh, southwest Scotland, on the 4th April 1957, an anomalous target was plotted by three widely separated RADAR systems. Initially stationary, the target then seemed to rise vertically and after making a very sharp turn moved to the southeast, appearing to gather speed as it did so. As this juncture, two RADAR units noted the alteration of this single "blip" into four distinct targets, each estimated to be comparable to a ship in apparent size. An official report into this incident concluded they were "five reflecting objects of unidentified type and origin...unlikely to be conventional aircraft, meteorological balloons or charged clouds". Although an important RADAR-UFO case, the fact that no visual UFOs were observed makes viable a diversity of potential natural explanations.

England's prime RADAR-visual UFO encounter event occurred at Lakenheath, Suffolk, on the 13th-14th August 1957. Over a period of several hours, commencing at around 9.30pm, very fast moving echoes were detected by RADAR systems located at both USAF/RAF Bentwaters and Lakenheath. They were seen by several independent observers in association with rapidly moving bright white lights, whose movements closely matched the RADAR returns. Many sceptical investigators including those associated with the Condon Project consider this event to be significantly anomalous.

Few RADAR-visual UFO cases are reported today. Some researchers believe this is due to improvements in RADAR systems, resulting in modern units producing fewer spurious returns. Others state that more recent RADAR-UFO events are deemed to be classified information. The main reason for this secrecy could be that any indication of the range, sensitivity and coverage of a specific RADAR set-up, especially those used by the military, would be of considerable use to any potential hostile power. Despite this, it is not uncommon for "leaked" rumours to circulate within ufology of comparatively recent RADAR/UFO incidents from supposedly semi-official sources.

DIRECT PHYSICAL UFO EVIDENCE

Physical matter originating or resulting from a UFO manifestation is probably the most highly desired form of UFO evidence. Unfortunately, no example of such "proof" presented to date has resulted in the unequivocal validation of UFO reality.

Angel Hair

“Angel hair” is a very rare form of alleged UFO-related discharge. It reportedly manifests as a white fibrous substance seen to fall from airborne UFOs, sometimes in great quantities. Especially puzzling is its inclination to dissipate into nothingness a few moments after being handled. It has been proposed that angel hair, and any associated UFO, may be natural in origin, either the result of balloon-spider migrations or industrial discharges. Other researchers feel a less mundane solution is required to account for some instances. They propose that bona-fide angel hair is composed of matter liberated from the atmosphere and bound together by UFO-generated ionising/electrostatic processes.

Metallic Substances and Artefacts

The first claim of a UFO supposedly generating direct physical evidence reportedly occurred near Maury Island, a peninsula 5 kilometres from Tacoma, Washington, USA. At this location on the 23rd June 1947, a formation of 6 silver doughnut shaped UFOs were purportedly observed, one of which discharged light metal flakes, and later rock-like slag, directly onto a boat containing two men, a boy and a dog. During this rain of debris, the boat was reputedly damaged, the boy injured and the dog killed. Those who saw examples of the metal recovered by the witnesses stated that it resembled scrap material derived from surplus WWII aircraft, quite commonplace in that era. The slag may have been naturally occurring rock or, as stated by UFO researcher John Keel, radioactive material illegally dumped from the air.

In September 1957, metallic fragments supposedly originating from a disc-shaped UFO that exploded over a beach at Ubatuba, Sao Paulo, Brazil, were sent, with a letter detailing this event, to a Brazilian newspaper columnist. Initial examinations of this metal suggested it was a totally pure form of magnesium. But a later examination by the University of Colorado UFO Project found it to be no more pure than other test batches of magnesium made during (or even before) 1957. Other examinations of the Ubatuba fragments were conducted after this date, some that suggested the metal was unusual, and others that it was fairly mundane in composition.

A few claims have also been made concerning the recovery of small, UFO-like artefacts. One of the best documented instances relates to the discovery of an unusual object reportedly seen falling to earth near Silpho Moor, Scarborough, Yorkshire, England on the 21st November (or the 1st of December) 1957. This 46cm diameter disc-shaped construct weighed 16 kilograms, and had a "hieroglyphic" inscription running around its lower section. When cut open, it was found to contain a copper tube which itself held 17 thin copper sheets adorned with further hieroglyphic writing. A supposed translation of this text relayed a message from the disc's extraterrestrial creators, describing how and why it had been dispatched to Earth. On examination,

the object was found to be constructed from copper and lead, the composition of both being terrestrial in nature. Needless to say, this case is widely dismissed as a hoax today. It is claimed (but not irrefutably documented) that the hoaxers responsible for constructing the saucer later confessed to their involvement in this affair. In some ways this case shares similarities with an elaborate student hoax perpetrated in September 1967, involving several small flying saucer models placed in a line spanning a considerable portion of Southern England.

There is reference in the early UFO literature to a substance termed "space grass", which some researchers suggested was associated with UFO activity. This was, in actuality, chaff, thin metal strips dumped from aircraft in order to "spoo" RADAR systems during military exercises. Similar claims were also made in relation to small spherical RADAR calibration targets, occasionally discovered by those unfamiliar with their true nature. One of the most unusual forms of alleged UFO physical evidence was the gift by UFO entities encountered in April 1961, at Eagle River, Wisconsin, USA. of several pancakes to a startled witness, Ed Simonton, in return for his filling their metal receptacle with water. An examination by the American Food & Drug Administration revealed them to be terrestrial in composition, comprising a mixture of fat, buckwheat, bran and soybeans (but notably lacking in salt).

Recovered Implants and "Black Light" Marks

Many UFO abduction narratives involve claims of participants being inserted with "implants", mostly in the nose and head region, during their experience. In addition, there are also allegations of suspected "implants" coming to light during X-ray, MRI or CAT scans. Few of these instances are associated with a subsequently retrieved artefact. Of those implants that are supposedly recovered, few such instances have been adequately documented. The majority of "implants" are claimed to dissolve or suddenly turn to powder when removed from the body, and those located by MRI/CAT scans have a tendency not to appear on later examinations.

In 1989, an "implant" was recovered from the genital region of a long-term abductee who claimed repeated entity encounters dating back from his childhood. This item (and several others recovered shortly afterwards) was elongated in form, about 4mm long by 1mm wide in size, and composed of a brownish, non-metallic translucent material. A detailed examination of these "implants" revealed them to be composed of a combination of calcified human skin cells and cotton fibres.

In Houston, Texas, USA an examination of several alleged UFO abductees conducted in late 1995 resulted in "implants" being discovered within their hands and feet. On removal, these artefacts were found to consist of a dark metallic core enveloped by a dense organic membrane. When this membrane was scraped away, these cores were revealed to be two separate, but tightly joined t-shaped objects, just under 5mm in size. Furthermore, it was claimed that there were a greater number of nerve endings in the flesh surrounding them, and that a gauss meter exposed to one of these "implants" reacted wildly to its presence. To date, independent evaluation the Houston "implants" has yet to be conducted.

Neither of these examples involves objects of a proven extra-terrestrial origin. Indeed, in one instance their composition was very strikingly mundane. Some researchers suggest that the "aliens" responsible for UFO abductions are able to create sophisticated "implants" from any material. Sceptics point out that such speculative thinking places these claims beyond scientific validation.

In the mid-1990s some American UFO researchers began to report finding strange markings upon the skins of some UFO abductee claimants. These patterns, sometimes stated to be highly elaborate in configuration are visible only under the illumination of an ultra-violet lamp (which is known as "black light" in the United States). Its common attributes are currently unknown, as no systematic examination of this phenomenon has yet been conducted by other independent researchers.

Crashed Saucers

Undoubtedly, the ultimate form of direct physical UFO evidence would be an actual UFO itself. Rumours of crashed flying saucers recovered by governmental agencies (termed "retrievals" by UFO researchers) have been a part of ufology almost since its inception in the late 1940s. The first widely publicized retrieval claim was featured in a book entitled *Behind The Flying Saucers*, first published in 1950. This work authored by Frank Scully gave details of the supposed recovery of three spacecraft and their dead alien crew by the United States Air Force. Two of these saucers had allegedly come down near the town of Aztec, New Mexico, the other close to Phoenix, Arizona. In September 1952, *True Magazine* publicly exposed this claim as being a hoax perpetrated by two notorious confidence tricksters. It is thought that the hoaxed 1950s "dead alien" photographs from Germany (discussed previously) were inspired by this allegation. A later but lesser known retrieval relates to the recovery of a crashed saucer and several charred crewmen discovered at Spitsbergen Island (located approx. 420km north of Norway) during the middle part of 1952. Again, this is thought to be a hoax derived from Scully's book.

Much later, during the mid-1970s, veteran American UFO researcher Leonard Stringfield authored a series of articles and papers detailing several new UFO retrieval allegations originating from the United States. The testimony relating to these events was often anonymously submitted, or came from third-hand sources and was unsupported by any material proof. However, these claims set the stage for the return of a once-forgotten retrieval event that would eventually take on major importance within ufology.

An alleged 1947 "UFO crash" near the town of Corona, New Mexico was quickly forgotten following a USAF press conference which explained the recovered debris as originating from a weather balloon. However, new interest in the case was ignited in 1980 by a book called *The Roswell Incident*, authored by Charles Berlitz and William Moore. This was eventually followed by numerous reports, books, documentaries and films covering the various claims associated with this event.

This affair began at the Foster Ranch, a farm located 48km from the town of Corona, New Mexico, USA (and some 120 km from the town of Roswell). On the 3rd July 1947 (or, according to some sources, the 14th June) the ranch's foreman, William W.

("Mac") Brazel, came across diverse fragments scattered widely around a field. These reportedly consisted of unusually strong, shiny foil, threadlike material, "I-beams" and tape decorated with "hieroglyphics". Personnel from the Roswell Army Air field eventually visited the site and recovered the fragments, which were then flown to Fort Worth airbase for examination. A short time later, after some notable press excitement, the military claimed the debris was actually pieces from a weather balloon. Great controversy remains over whether the pictures of the fragments released to the media show the material actually recovered from the Foster Ranch. Rumours and first-hand claims surfaced many years later stating that a more complete section of the "UFO", along with several "alien bodies" was discovered a few kilometres from the main debris site.

Due to pressure within American government circles for full official disclosure concerning the Roswell incident, The US General Accounting Office (GAO), conducted an enquiry into this event, issuing a report on their findings in 1995. This enquiry found no evidence for a cover-up and discovered no new major documentation relating to the event. It further suggested that a formerly secret military reconnaissance balloon programme called Project Mogul was the source of the Foster Ranch debris. Those who are convinced the incident involved a crashed UFO, who state its negative findings are based on incomplete data, reject the conclusions of this report. Sceptics point out the report uncovered nothing to refute a down-to-earth solution for the event, and actually strengthened the case for one.

THE UFO "COVER UP"

A considerable number of UFO researchers believe that the official policy of most governments, i.e. deeming all UFOs to be explicable and publicly issuing statements to this effect is, in actuality, a smokescreen utilised to cover up the truth about UFOs. The nature of this "truth" is sometimes claimed to involve the "fact" that official agencies are aware that some reports are truly inexplicable, but conceal this knowledge due to their inability to stem the tide of unidentifiable incidents, or to identify their causes. Other researchers allege that at least some governments know the true origins of UFOs, acquiring this knowledge either through direct official contact with aliens or via crashed UFOs and extraterrestrial cadavers that incidentally came into their possession. A variation of this concept claims some governments are directly responsible for most UFO events which, in actuality, involve classified spying missions and secret technology, even - in the case of abductions - illegal mind control experiments. It is further alleged that Project Blue Book and the limited UFO report monitoring efforts of other countries, such as the U.K, were and still remain a "public relations front" to conceal more covert and elaborate projects relating to UFOs.

The most prominent critic of the US Air Force's UFO policy during the 1950s and 1960s was the writer (and NICAP director) Donald Keyhoe. Both in his books and through NICAP he espoused his suspicion that the government was fully aware that UFOs were extraterrestrial devices. He suspected that covert forces within officialdom, which he termed the "Silence Group", were attempting to conceal the truth about UFOs by falsely explaining away all sightings and controlling information on inexplicable reports. This was due, alleged Keyhoe, to governmental concern over the detrimental effects which official acknowledgement of extraterrestrial visitation

could have on society. Others since that time have promoted revised conceptions of the "UFO cover-up", which in general essence differ little from Keyhoe's original interpretation.

It is clear from the historical record that the USAF projects did enthusiastically indulge in a policy of debunking, by attempting to explain all UFO sightings by any means possible. Debunking in its most detrimental sense did (and does) occur when totally inappropriate and improbable explanations are proposed to account for a specific UFO incident. But it is also equally clear that, most of the time, the USAF approach was actually valid. This is reflected by the fact that the majority of reputable UFO societies active today use the same methods of case evaluation as the USAF, which uncover the same causes for IFO events cited by Project Blue Book - astronomical bodies, weather balloons, aircraft and so on. Furthermore, the majority of civilian groups even arrive at a percentage of unknowns comparable with the old USAF sighting statistics! The only way that UFO groups differ from the official bodies in their approach is in their conviction that the "unknowns" represent extraordinary aerial events.

Hence, it is just as likely that official attitudes towards UFOs may not be the consequence of a sinister, world-shaking cover-up, but just a mistaken official interpretation of the evidence. The USAF attitude of explaining away all sightings may have resulted from a predominantly conservative social and scientific attitude towards such (at that time) novel and extreme events. This view would have seemed all too justified by the considerable number of IFO incidents received by the USAF and other less official organisations. It may have equally arisen from Cold War-era fears of sightings being utilised in psychological warfare by hostile powers. It may have come about as the consequence of both these factors combined. This alone could well have resulted in some anomalous events being incorrectly evaluated or overlooked, hence condemning any "true" UFO report to conceptual oblivion.

Whatever the truth, it is clear that the American government did have regulations put into force to control the flow of UFO reports. For example, JANAP (Joint Army, Navy, Air Force Publication) 146, issued in 1951, governed the reporting of any missile, submarine, aircraft or UFO. It made all those potentially covered by this regulation (both civilian pilots and military personnel) liable to prosecution if they prematurely released such information to non-official sources. Another regulation issued in 1953 (AFR 200-2), required those involved with assessing UFO reports to reduce the number of "unidentified" reports to a minimum. It also forbade air-force personnel from talking to the media on UFO matters, stating that any queries relating to the subject were directed to Project Blue Book. Furthermore, it ruled that details of a sighting were not to be released until the Air Force was satisfied it was explicable. According to Edward Ruppelt, AFR 200-5 was intended to encourage reporting of UFOs to Blue Book, as negative publicity about the subject was making witnesses reluctant to come forward.

In 1974, long after the termination of Project Blue Book, changes to the Freedom of Information Act in the United States encouraged a court action by Ground Saucer Watch, aimed at obtaining any UFO-related information held by either the CIA or the NSA (National Security Agency). By the early 1980s, after some considerable effort on GSW's part, several thousand pages of data had been released. This information

included translation of foreign articles, copies of letters to and from ufologists, details of foreign UFO reports and internal memos mainly dealing with the Air Force's UFO projects. Some of these documents are heavily censored, many lines of text being overwritten with black "masking" pen. Furthermore, a considerable number of documents remained withheld on alleged national security grounds. These documents remain highly controversy and are open to a variety of interpretations. Some claim they prove the existence of a long-term UFO conspiracy by both the CIA and the NSA, others that they simply indicate the subject was monitored at a low level by these agencies.

Officially, the British political establishment has always been highly sceptical of UFOs, basing this attitude upon the findings of Blue Book and the Condon Report. In Britain the Official Secrets Act controls the flow of classified information within military and governmental channels. Official documentation about various subjects (including UFOs) is, at the earliest, released 30 years from its date of origin. For particularly sensitive documents this interval ranges from 70 up to 100 years. It is believed, from statements made by MPs and civil servants, that some early UFO documents (such as those relating to the 1957 Lakenheath/Bentwaters incident) were destroyed as part of a file-clearing policy enacted every 25 years. However, other documents from the same era have resurfaced. Why these items survived is currently unclear; it certainly casts some doubt on whether (for example) the Lankenheath/Bentwaters documents were actually destroyed. Could their classification status have resulted in them not being released, along with other similar documents?

All the above makes it clear that official enquiries relating to UFO matters have been rated as "classified information" in some circumstances. It also indicates that claims and evidence that seemingly support the reality of a "UFO cover-up" require as much careful assessment as the UFO reports themselves. Are the instances where the government has withheld information on UFOs attributable to some earth-shaking hidden knowledge about the subject? Alternatively, could it be due to more mundane reasons, ranging from unease about certain documents demonstrating official uncertainty as to the nature of UFOs, or fears that they may publicly reveal the infrastructure of military establishments, modes of communication and the capabilities of "sensitive" military technology? This is still very much an open question, although current evidence seems to suggest the latter possibility.

The "Cover-up's" Wilder Side: MJ-12 to Area 51

Before the mid-1980s, the majority of governmental cover-up allegations were relatively mild, involving the suppression of important cases and the misrepresentation of sightings. This changed drastically during the mid-1980s, when a series of astounding allegations were made which, if true, inferred that the American government had considerable knowledge of the origin of UFOs. By the beginning of the 1990s these allegations had become highly influential aspects of popular ufology, and remain so today.

The most important of these relate to a supposed top-secret American UFO study group called Majestic 12 (reputedly also known by the abbreviations MJ 12 or Majic-

12). Evidence of this alleged organization first surfaced in 1984, when a roll of anonymously submitted microfilm arrived at the residence of television producer Jaime Shandera. The group's name supposedly derives from its administration panel, which comprised 12 high-ranking individuals with notable scientific, political and military backgrounds. It is said to have been founded in 1947 as a direct consequence of the so-called "Roswell incident". The main MJ-12 paper is a 5-page document dated the 18th November 1952 and appears to be a briefing dossier issued to President-elect Eisenhower. This lists the members of this covert group and, additionally, gives information relating to the Roswell incident and the UFO reports which preceded it. It describes in some detail the discovery, recovery and analysis of a crashed extraterrestrial device, which the dossier claims contained 4 dead aliens. The second core MJ-12 document is a letter dated September 24th, 1947, addressed to alleged MJ-12 member James V. Forrestal and purportedly issued by President Harry Truman, outlining the project's brief. Some UFO researchers feel the MJ-12 papers are conclusive proof for the reality of extraterrestrial UFOs and the related cover-up, and support the "crashed alien spacecraft" interpretation of the Roswell incident. Others state that the documents show many indications of being fairly recent forgeries. A steady flow of fresh documents relating to Majestic-12 continued to appear throughout the 1980s and 1990s.

Following the appearance of the Majestic-12 documents, several individuals came forward with yet more revelations concerning the American government's alleged cover-up of UFOs. A host of astounding allegations were made by a variety of documents, mainly the so-called "Beta Report", "The Lear Document" and the "Dulce Papers", all of which first appeared in the late 1980s. These documents alleged that the American military establishment was holding living alien hostages, and, more astounding, that the American government had officially sanctioned extraterrestrial "harvesting" of livestock and human UFO abductees. Detailed claims of alien bases upon the earth and secret deals between aliens and various world governments became commonplace during this period. Although all these allegations were, to say the least, fantastic and poorly substantiated, they indirectly formed the basis of a revamped extra-terrestrial belief system that would dominate public discussion of the UFO phenomenon throughout the 1990s.

In recent years much attention has been being focused on the Nellis test range complex, a large area of highly restricted and heavily secured land in southern Nevada, USA, used to develop various classified aircraft. Past examples of technology tested and perfected in this locale include the U2 spy plane, the SR-71 Blackbird, the F-117 and latterly the B-2 stealth bomber. Sites within this region (semi-officially termed "Area 51") include Groom Lake Air Force Base. Film taken from just outside this base's perimeter shows lights moving in an anomalous manner, i.e. performing turning manoeuvres which would render unconscious any human pilot contained within such a device. However, most ufologists feel that at least the majority of this footage depicts RPVs (remotely piloted vehicles) developed at Groom Lake, which due to being teleoperated or robotically controlled can perform manoeuvres impossible for a manned aircraft. The USAF refuses to make any detailed comments concerning their activities at Area 51. The mystery surrounding this region deepened with the allegations made by Bob Lazar, an individual who claimed to have worked as an outside technical contractor on an installation called "S-4", reportedly located some 16 kilometres from Groom Lake AFB during the late 1980s. Lazar and

others were supposedly employed to "back-engineer" nine disc-shaped devices of alien origin, said to fly via amplified gravity-wave propulsion units and anti-matter power plants. Attempts have been made to discredit Bob Lazar's claims, suggesting that he was never employed at this secret facility. However, on investigation by tenacious researchers, a tax return in Bob Lazar's name was unearthed, clearly indicating that he was indeed employed by Naval Intelligence (S-4).

The Government (or someone) is watching...

A few UFO researchers allege they are, or have been monitored by governmental agencies, citing possible instances of mail tampering and phone-tapping as evidence to support their assertions. Documents have surfaced, the majority of which are probable forgeries, claiming certain ufologists are government plants, whose aims are to spread false information about this subject. However, it is a matter of record that several American UFO researchers have openly claimed to act in this capacity on behalf of certain intelligence agencies.

UFO witnesses from many countries have claimed visits from individuals alleging to represent various government departments. Usually, such visitors appear to be what they claim. A few such claims refer to visitors who appear or behave outlandishly. They may act in an idiotic manner, ask strange questions, and dress in out-of-date outfits and/or drive decades old but showroom fresh cars. They may give military credentials which, following later enquiries, turn out to be false. In some instances they confiscate - or attempt to confiscate - UFO photographs or other evidence. They are also claimed to advise witnesses not to discuss their sighting, often issuing B-movie gangster-type threats in the process. It is to this peculiar category of pseudo-official visitor that ufologists give the title "Men in Black", or MIBs (named after their supposed preference for dark attire).

These so-called "Men in Black" made their first appearance during the early 1950s in a sensationalist book written by Albert K. Bender who, incidentally, founded one of the first civilian UFO groups. The book was called "Flying Saucers and the Three Men". Most ufologists dispute the very wild allegations made in this tome, but it set a precedent for such visitors. Views about the true nature of MIBs vary from them being direct representatives of aliens, government agents from a secret UFO governmental study group or merely eccentric UFO buffs passing themselves off as officials in order to gain access to witnesses.

ASTRONAUTS AND UFOs

UFO sightings by astronauts in space are highly prized by some ufologists, and are a major topic of UFO conspiracy theories. Numerous claims have been made of UFOs being observed during various *Apollo* missions, either following the capsules to and from the moon, or of landed UFOs being observed upon the lunar surface. All of these stories are, however, denied by the astronauts concerned.

There have been, however, quite a number of genuine observations of UFOs made during NASA's *Mercury* and *Gemini* missions. Unfortunately, nearly all these events

seem to have reasonable explanations, ice-flakes from rocket fuel tanks, satellites, expended rocket-stages and ejected garbage from manned space capsules. None have any close similarity with standard UFO reports, the absence of any reported "close encounter" type cases being particularly noteworthy. Others are proven hoaxes or forgeries. For example, a photograph taken during the *Gemini 8* mission showing a reflection from the capsule's window was doctored by airbrush trickery to look like two glowing oval-shaped UFOs. In recent years several shuttle missions have been associated with claimed UFO incidents. As with the early astronaut UFO sighting claims, several are hoaxes or exaggerated prosaic events. However, a film taken from the shuttle *Discovery* in September 1991 shows several fast moving streaks. Although the majority opinion is that this film shows ice crystals, others strongly disagree with this evaluation.

THE BIRTH OF POPULARIST UFOLOGY

The belief in a UFO cover-up along with other, more extreme, aspects of the subject has been markedly popularised (and doubtlessly reinforced) in recent years by several media conceptions and innovations.

In 1993 British television first broadcast a Sci-Fi series called the *X Files*. Upon its initial showing, many TV critics wrote the programme off as badly acted, escapist nonsense. Even those involved in its production, such as its creator, Chris Carter believed it would not even last a single series! But against all expectations the *X Files* became a global phenomenon, succeeding largely by reflecting the beliefs, concerns and ideals of contemporary culture. The series is set in the present day, and deals with the adventures of two FBI agents whose brief it is to investigate unexplained phenomena. Many episodes feature stories based around UFO sightings, crashed flying saucers and alien abductions, loosely derived from actual claimed experiences. In regards to UFOs, the *X Files*' underlying narrative supports the idea that UFOs are from outer space and covert forces within the government are involved both with alien forces and in a secret war to suppress evidence capable of proving their existence. This programme is thought to have largely instigated the 1990s' obsession with the paranormal. The *X Files* further resulted in bring many previously obscure ufological claims to the attention of a mass TV audience, thereby allowing them to permeate mainstream society.

The popularity of the *X-Files* alerted TV producers to the substantial interest in UFOs and the paranormal inherent even within a general viewing audience. Prior to the 1990s UFO documentaries were few and far between, with nearly all that did appear adopting a highly sceptical approach towards the subject. But, in the wake of the *X-Files*, UFOs began to be covered on a much more regular basis. With the VCR by that time a common item in most western households, a wave of special interest videos dealing with UFOs began to appear, the number currently available being quite considerable.

The scientific and sceptical community, however, expressed concern over many of these new wave UFO documentaries, due to their marked tendency to avoid balanced discussions of the UFO phenomenon, with any negative evidence relating to a specific

case being usually ignored or, at best, played down. The majority unquestionably advocated an extraterrestrial origin for those UFO events they deemed to be unexplained. Even more controversially, many utilised speculative dramatised "reconstructions" of notable UFO cases, which often gave the viewer no reason to doubt that they truly involved phenomena of a highly anomalous nature. As a result, many UFO sceptics condemned these programmes as being mere "paranormalist propaganda", whose aim is not to inform, but to deliberately pander to the pseudo-mystical yearnings and credulity of the public. Despite these various savage criticisms, they remain highly popular. (With the advent of the new millennium we are seeing a subtle but significant change in approach by documentary makers – the scientists and sceptics are having their say, and alternative hypotheses for alleged UFO/alien intervention are being presented to the public).

At around the same time (1990s), various glossy newsstand magazines dealing with UFOs appeared on the market. Although there had been previous attempts at producing a publicly available UFO magazine, few such efforts lasted more than a few issues; no more than one ever appeared in a specific moment of time and, in the main, their circulation tended to be quite limited. However, in the *X-Files* era a prolific number of competing UFO journals lined the magazine shelves, some remaining in circulation for several years or more. Like many contemporary TV and video UFO documentaries, the majority of these publications were notably uncritical regarding the various aspects of the UFO phenomenon and tended to be predisposed towards an extraterrestrial-based interpretation of the subject.

This marked popularisation of UFOs coincided (or, perhaps, was aided by) the rise in usage of the Internet, a global computer-based communication medium that has had a major influence upon ufology in recent years. Prior to its general availability, it was virtually impossible to circulate "fringe" ideas amongst a mass audience; the printing and distribution costs involved rendered this an impossibility. With the arrival of the Internet, the need to actually physically print ideas was no longer required. The information, which can take any conceivable form- textual, visual, audio or a combination of all these- can now be uploaded onto a website and downloaded directly to a connected computer, thereby making it swiftly available to the whole world. The fact that most Internet servers are also very liberal in what can be downloaded onto a website (regardless of how loathsome or spurious that data is) has also greatly aided the mass dissemination of various ufological and other "fringe" topics. Conspiracy theories once deemed so ridiculous as not to merit discussion, such as speculation that the moon landings were hoaxed by NASA, now receive mass public exposure via this medium, and, as a consequence, appear more often in other media such as TV, magazines and books.

WHAT LIES BEHIND UFO REPORTS?

Despite more than half a century of sightings and speculation no clear consensus has yet emerged regarding the origin of UFO events. There is, however, a plethora of often wildly divergent opinion concerning their possible nature. Conventional scientific wisdom still dismisses all UFO events as misperceptions, misinterpretations, hallucinations, hoaxes or optical illusions. Within the ufological community there is a considerable lack of consensus regarding the origin of UFOs, with notable differences

of interpretation existing even among researchers sharing the same ufological perspective. The only thing that ufologists can all agree on is that **some** UFO events require extraordinary explanations to satisfactorily account for them. Therefore, any attempt to objectively explain "true" UFO events must involve the examination of a wide variety of hypothetical possibilities.

For a given UFO hypothesis to be both truly viable and scientific, it has to be demonstrable, falsifiable, possess clearly defined parameters and satisfactorily account for the diverse reported attributes of "true" UFO phenomena. Furthermore for a theory of UFO origin to be acceptable to the scientific community, it should (as much as possible) be consistent with our current understanding of the natural world. It is quite apparent that many currently popular UFO theories fail on nearly all these counts. Many are effectively improvable, possessing wide and ever-changing conceptual parameters and often depending on intensively enforced high-level conspiracies to account for a lack of supporting physical evidence. Others are based on novel reinterpretations of the laws of physics, or the existence of "occult" forces, their validity thereby requiring a natural order markedly different from our current understanding of the universe. Finally, any good UFO theory should never lose sight of the fact that most sightings are explicable in normal, already well-understood terms. Furthermore, it must also give due consideration to the powerful psychosocial forces influencing the perception of both IFOs and "true" UFOs at every conceivable level.

The mark of any viable UFO theory is that it can account for the variously reported and distinctive elements of UFO behaviour. As a consequence it therefore has to explain:

A: The reported "total air capability" of UFOs - their claimed ability to move like aircraft and hover for extended periods like helicopters, whilst also exhibiting variable rates of speed ranging from nil to (estimated) velocities in excess of 1000kph.

B: Their ability to make very fast, tight angle turns, to stop instantly while travelling at high velocities and instantaneously accelerate to very fast apparent rates of speeds when at rest. Furthermore, it must account for all these actions in a way that does not result in the generation of a sonic boom.

C: The various shapes associated with UFOs, which range from balls of light to domed discs, and other appearance attributes intermittently associated with this phenomenon (colour changes, changes of shape) along with noise and smell emissions, or the lack thereof.

D: The various "close encounter" effects, which range from alarmed reactions exhibited by animals, physiological and physical reactions on humans, and detrimental effects on mechanical devices up to physical trace evidence.

E: The occasional psychical and "Oz-factor" manifestations claimed in association with certain high strangeness UFO events.

F: The semi-material nature of "true" UFOs, the phenomenon capable of both being photographed and of leaving physical traces but, especially in the cases of close

encounter experiences, never being observed or photographed by great numbers of witnesses within (or over) densely populated areas.

G: The presence and the connection between UFOs and alleged UFO occupants.

With these attributes of the UFO phenomenon in mind, let us now look at, in turn, the most prominent UFO hypotheses proposed to date.

1: The "Radical Misperception" Hypothesis

The first question which ufology must address relates to the most important aspect of this subject, the matter of whether "true" UFOs actually exist as distinct and unique phenomena. It is all too apparent that many sightings involve misperceptions of man-made objects and natural phenomena. A few, however, seemingly involve manifestations quite unlike that currently known to conventional science. From that fact alone, one could claim that "true" UFO incidents are of scientific note and merit. However, against this, little good physical evidence is available to support the existence of "inexplicable" UFOs.

Therefore, based on this dearth of physical proof, orthodox scientific thought holds firmly to the singularly stark premise that UFOs do not exist. The majority scientific opinion expounds the view that the mundane phenomena responsible for UFO events are also responsible for "true" UFO sightings. This is the view also espoused by the majority of high-profile UFO sceptics.

The mainstream scientific attitude regards the diverse (and seemingly highly anomalous) UFO motion attributes as the result of various deficiencies inherent within human perception. The fact that many reported UFO actions are, based on our current understanding, impossible is taken as further proof that "true" UFOs are not physically real. Other UFO attributes, such as colour and shape changes, are stated to involve atmospheric effects similar to those which induce similar effects upon, for example, stars thus causing distortions and mirages. Mechanical effects and also photographic and other "trace" evidence are accounted for in terms of either hoaxes or (often incidental) natural occurrences. Claims of UFO-originated biological reactions are regarded as yet more fabrication or effects induced by temporary hysteria, generated by the stress of a witness encountering what he or she believes to be a UFO. Those who doubt the reality of UFOs make particular note of the fact that the majority of close encounter experiences hardly ever involve mass observations in highly populated areas. UFO occupant claims are explained as hoaxes or hallucinations, abductions narratives as resulting from false hypnotic memories. Missing time is thought to involve nothing more than simple time-estimation errors or, at most a *fugue* state, a form of amnesia evoked by either trauma or naturally induced shifts in consciousness (akin to the so-called "highway hypnosis" effect), in which the person concerned is capable of performing highly complex actions such as safely and competently driving a car whilst having no conscious memory of doing so. In some cases, temporal lobe lability (mild epileptic-like seizure), fairly common amongst the general population, is implicated.

Those sceptical of UFO reality often feel that the key to comprehending UFOs lies within the influential social perceptions and beliefs that permeate ufology at every conceivable level. The first "modern" UFO events occurred at a time when Cold War fears were at their highest, when the onslaught of scientific progress, the crumbling of established religions and the detrimental consequences of the then recently concluded Second World War also began to noticeably affect society. But the emergent rocket technology, primarily spawned by WW2, gave hope of new saviours - extra terrestrial visitors - who would "plug the spiritual gap" left by discarded standards and belief-systems that now seemed baseless and discredited by wartime vileness such as the holocaust. Sceptics further propose that circumstantial evidence suggests that when old fears about aliens (such as those depicted in early 20th century science fiction) passed away, the popular conception of UFOs altered to fit new social and spiritual needs. Aliens had mutated from monsters to saviours. Cultural and technological factors have always determined the nature of the "divine", angels and devils being prevalent during the medieval era, advanced extraterrestrials in today's space-age culture. With a planet-spanning media transmitting the concept of UFOs to a global audience, virtually everyone knows of the attributes that UFOs (and their occupants) are reputed to possess. These expectations and beliefs subsequently colour observations of any UFO sighted by those aware of this conceptual stereotype.

As surprising as it may seem, most advocates of UFO reality agree with a substantial portion of the sceptical argument! It is a fact of ufology that the "populist" view of the subject comprises mainly apocryphal events and wishful thinking. However, UFO advocates adamantly reject the total dismissal of "true" UFO reality for what they deem to be (in their view) several very sound reasons. To begin with, UFO proponents feel that the nature of some sightings is so spectacular as to be very difficult, if not impossible, to debunk in terms of exaggerated observations of mundane phenomena. While it is true that sceptical solutions can be proposed for all such cases, these involve so many at times wild assumptions that it seems just as probable that some novel phenomenon was actually responsible.

Furthermore, what of sighting-events where it is discovered that no natural phenomenon was present which is realistically able to account for the experience? Why are the attributes of "true" UFOs in such cases totally different to the well-understood attributes of the various IFO phenomena? If UFO motion attributes are (as orthodox thinking propounds) the result of optical illusions why are they so consistently described? If UFOs are total bunk, why are the diverse close encounter effects also consistently described, a concordance present in all such manifestations ranging from UFO-induced reactions on humans and animals right up to the so-called "Oz Factor". Finally, can orthodox science say with total certainty that no UFO report involves any novel effect or phenomena, especially when our understanding of the physical laws of reality is still notably incomplete? It is surely bad science not to be open to the possibility that some UFO events could involve non-standard effects, devices or phenomena. A total dependence on a "radical misperception" solution for "true" UFO, merely as an expression of partisan loyalty towards current orthodox scientific thinking, may easily result in events of major scientific importance being overlooked. Indeed, most UFO advocates doubtlessly feel this has happened countless times already.

2: The "Unusual Natural Phenomena" Hypothesis

While it appears that some "true" UFO events appear not to involve conventional natural phenomena, does this automatically mean that wildly extraordinary, paranormal explanations are required to account for them? Are there indications of the existence of any rare, natural phenomena possessing the appearance, attributes and characteristics of UFOs?

To begin with, there is a diversity of natural high-energy effects and processes currently known to science. Furthermore, there are many manifestations of the natural world that still elude the comprehensive understanding of contemporary physics. An example of one such phenomenon is ball lightning, an energy manifestation known to science for many hundreds of years. The majority of ball lightning events refer to a yellow, red or whitish-blue coloured spheroid around 30 cms or less in size, with sightings usually no more than 5 seconds in duration. It may either slowly float past an observer, or rapidly traverse along a highly erratic trajectory. Its demise is sometimes marked by a loud bang and a back-blast of warm air and the ejection of "sparks" or "streamers" of light in various directions, other times by it suddenly fading inoffensively into oblivion. As its name suggests, this phenomenon is nearly always seen in association with thunderstorms. Nobody to date has any clear idea how ball lightning is generated, but numerous theoretical models have been proposed. Most of these hypotheses involve various dynamic energy processes that generate luminosity by altering the electrical potential of the surrounding air, usually through ionisation.

Therefore, could some UFOs be a form of ball lightning, or a closely related phenomenon? There is much compelling evidence to suggest that high-energy processes are implicated in at least some "true" UFO manifestations. This is apparent to such a degree that many ufologists already accept that some UFOs are thus naturally generated, classifying such events as UAPs (Unidentified Atmospheric Phenomena). Although our knowledge of plasma physics is incomplete, what we do know suggests that such a hypothetical "plasma" could possess a wide variety of possible attributes. Fast, dynamic movements would be expected, and rapid stops and starts and tight turns could be quite viably exhibited by this phenomenon, due to its highly energetic, semi-solid and lighter-than-air composition. The various UFO shapes could result from its formative characteristics. Spheroid-based forms would be the expected norm; in this regards it is interesting to note that the majority of common UFO shapes (such as "discs", "cones" and "cigars") can be derived from either an elongated or contracted spheroid. Furthermore, various natural phenomena, from lenticular clouds to galaxies can evidence rudimentary discoid forms. Unusual cloud and wind vortex phenomena such as tornados, funnel clouds and "barrel" clouds are capable of producing tubular, conical and elliptical shapes. Protean (i.e. shape-changing) behaviour would also be possible, this phenomenon being a semi-solid energy manifestation. The colours of such a "plasma" would derive from its present energy-potential, as is the case with lasers and stars. Colour changes could reflect changes in the plasma's energy potential; air, for example, fluoresces a bluish-white when highly energized, reddish-brown when subjected to much lower levels of energy. Both these colours are similar to those attributed the majority of unexplained UFOs. Humming and buzzing sounds are commonly produced by conventional whirlwinds and tornadoes (and also by artificial electrical generation processes).

Plasmas could also theoretically manifest many of the recorded "close encounter" effects. Exposure to heavy doses of ultra-violet or microwave radiation may produce a number of the physical symptoms reported by witnesses involved in diverse high strangeness events, e.g. feelings of heat, nausea, skin tanning and burns. Others, such as radio and TV interference, and possibly ground traces and "car-stopping" could equally well result from close proximity to a natural plasma manifestation. Plasmas would also be better observed in areas of low illumination (i.e. regions of low population), therefore resulting in more observations in rural districts.

UFO entity observations and Oz-Factor effects are a special case. Although it would initially appear that plasmas are an untenable cause for such incidents, some researchers have suggested that the electromagnetic energy theoretically generated by such phenomena could affect the human brain in specific ways, inducing "visionary" experiences. Furthermore, if close encounter events only result from close exposure to plasma-forms, it could explain the dearth of mass-witness close encounter experiences. The fact there is often a history of previous psychic experiences claimed by many high strangeness event witnesses could suggest that such people are particularly sensitive to the hypothetical "brain-scrambling" fields emitted by these (equally hypothetical!) plasma-forms. Could such emissions also induce blackouts, transitory trance-states and affect the body's ability to make reasonable estimates of elapsed time, resulting in episodes of "missing time"? In this case the time lapse would be all that objectively exists, any subsequent abduction narrative being the result of a collectively created fantasy generated by hypnotherapist and witness.

Despite these compelling links, there is no incontrovertible evidence that such exotic plasma effects exist. The greatest problem is explaining how such phenomena can come into being, and then continue to exist for up to several minutes or more. All the artificial plasma phenomena created to date are either formed under special conditions such as within an artificial vacuum or endure only for a few seconds. It is clear that any such plasma phenomenon would either involve a singular, incredible burst of electrical energy, or a mechanism that continuously re-energizes it.

Recently several potential modes and bases for plasma-form generation have been proposed. One recent suggestion is that plasma manifestations involve the natural liberation of so-called vacuum or zero-point energy (the massive energy potential inherent within quantum-scale fluctuations continuously occurring within "empty" space). Another putative mechanism involves the plasma vortex effect, a hypothetical plasma manifestation related to tornadoes. It involves a swiftly rotating mass whose rate of spin is sufficiently rapid to induce cascade ionisation (i.e. a sustained series of ion collisions), causing the ions within this form to contract, generating a "pinching" in the magnetic field around them. This may result in the formation of a low pressure "cavity", a natural semi-vacuum environment where the air's electrical resistance would be much lower than normal and in which any trapped air would likely fluoresce. It is proposed that this plasma vortex may, depending on its rate of spin and ion content, assume a conical, cigar, spheroid or discoid form. It is speculated that a continuous input of air would be piped through the plasma vortex's conducting funnel, replenishing consumed ions with new ones. This would result in a plasma phenomenon with a much longer duration than conventional ball lightning.

The main drawback of the plasma vortex hypothesis is that it was largely inspired by crop circle events, the vast majority of which, however, have subsequently turned out to be man-made. Fortunately, this ill-favoured association by no means destroys the viability of this hypothesis. The theories underlying the physics remain sound, and there are many allegations of so-called "saucer nests" being formed by UFOs, a sizeable number of which pre-date the modern crop circles phenomenon by a decade or more. It is therefore suspected that many UFO sightings associated with "saucer nests" may pertain to observations of plasma vortices or other similar natural phenomena.

A number of statistical studies have discovered that a considerable amount of UFO activity appears to cluster around geological fault-lines. Many of these reports describe mysterious lights which appear to follow the course of a fault-line, and which seemingly originate from the ground and disappear at very low altitude. These types of luminosities suggest the existence of what are now termed earthlights, free-floating light manifestations created by geophysical processes. Increasing this concept's viability is the presence of earth faulting in areas host to high levels of protracted UFO activity, a correlation that occurs in "ufocals" as geographically diverse as Hessdalen in Norway and the Pennine Hills region of Yorkshire, England. Additionally, there is good circumstantial evidence of extreme long-term activity, with repeated UFO events occurring in places rich in local folklore, often with place-names containing "devil", "goblin" or "dragon" elements, suggesting these regions were known for many hundreds of years as places of mystery, or even power.

It has been long accepted by the scientific community that faulting can produce luminous emissions. Numerous, well-recorded observations of earthquake lights have been made prior, during or after many major earthquakes occurring throughout the world. Although it is clearly evident that earth faults can generate various types of light phenomena during earthquakes, it is still uncertain how they could do so as the result of more modest tectonic activity. This is a distinct problem for the concept of earthlights, with the UFO events potentially explicable by this effect often not being associated in any way with any obvious geological activity. However, in these instances, much more subtle geophysical processes could be involved, for example miniature (often undetectable) earthquakes, a slow, gradual, build-up of minor earth stresses, solar and lunar induced fault-stressing or a combination of all these factors.

There is also considerable debate as to what actually empowers earthlight manifestations. The presence of quartz-bearing rock in various earth faults has been noted; this is of some importance, as it has been long known that quartz can produce transitory luminous emissions when placed under a breaking strain, via the piezoelectric effect. However, even many advocates of earthlights believe that this factor alone is insufficient to account for their instigation, feeling an interplay of various energy processes is probably involved. As a result, other possible modes of generation, such as triboluminescence (illumination induced through friction) or trapped sub-atomic particles, have also been suggested. It is further speculated that underground water or mineral veins are involved in the transmission of this geophysically generated energy from the ground (eventually) up to the lower atmosphere.

Earthlights and plasma vortices, although scientifically viable, have a number of conceptual hurdles to cross before their existence is generally accepted. In the case of plasma vortices it has still to be demonstrated that this effect occurs within nature, even if its hypothetical attributes closely match those of some "true" UFOs. Earthlights, however, face fewer such problems. The concept is supported by the occurrence of earthquake lights, and is based on processes known to exist within nature. However, some problems remain in explaining the hypothetical presence of earthlights under conditions of very low seismic stress. However, even in this situation energy processes do exist which could give rise to them.

Some critics of the earthlight hypothesis have questioned the correlation between faulting and increased levels of UFO activity, stating that the data samples used to prove this link are poorly screened, and hence would contain large numbers of UFO events. However, this in itself does not invalidate the possibility of such a link, for if faulting does generate unusual light manifestations, clusters of "anomalous" events around earth faults would still naturally occur in unfiltered samples of UFO reports. Furthermore, a lack of filtering rules out any subjective bias affecting that particular data sample. It should also be noted that an apparent correlation with earth faults is actually more startling within a data sample containing a wide range of possible phenomena! Thus, it was probably necessary for unfiltered samples to have been used in the initial stages of ascertaining the viability of such a connection. But is now apparent that more refined studies (using samples totally comprised of "true" UFO events) will be required to determine whether this connection holds up under more rigorous statistical conditions.

2A: The "Electro-Staging" Hypothesis

Emissions from radio and TV transmitters, phone masts, power-lines, electrical sub-stations and even certain home appliances all contribute in creating an extensive and ever-present background "smog" of electromagnetic energy. The electro-staging hypothesis proposes that many forms of UFO experiences are directly generated by exposure to this energy pollution. This theory predicts that the majority of high-strangeness events will occur within radio "hot spots", often a location directly between two radio masts where a "space wave" (an unintended earthing effect associated with a radio signal) reflects off the ground and arcs back to the receiving transmitter. Geophysical features such as valleys, quarries, mines, fault-lines and large areas of water are stated to enhance the intensity of such "hot-spots". These artificial energies may generate visible plasma manifestations termed "electroforms" by the electro-staging hypothesis or other, more major, effects.

The electro-staging hypothesis explains the detrimental health effects experienced by some high-strangeness UFO witnesses as being attributable to a condition termed electro-hypersensitivity. This is an allergic reaction said to afflict individuals residing within electromagnetic hot spots for prolonged periods of time. People suffering from this condition exhibit distinct physical ailments and symptoms, and other indirect effects such as anomalous malfunctioning of electrical equipment within the affected area. The electro-staging hypothesis explains rashes and swelling said to affect certain close-encounter witnesses, not as the result of exposure to intense ultra-violet or microwave radiation, but to an allergic reaction to the encountered "electroform".

Entity events are thought to be hallucinations induced by exposure to electrical emissions affecting specific parts of the brain. "Missing time" is explained as either arising from a drop attack (a fainting fit induced by exposure to electromagnetic energy), automatic behaviour (an active trance state, in which those affected are capable of fairly complex actions) or desynchronisation (a direct effect on the brain's time-estimation ability). The brain is an electro-chemical organism, with its own electro-magnetic field. Exposure to a re-radiated, but invisible environmental field can theoretically induce "scrambling" of normal brain function, of which one of the most important tasks is the laying down of memory. If this process is undermined or interrupted, memory of the time during radiation exposure may be distorted, or even absent altogether.

The electro-staging hypothesis is particularly noteworthy for its ability to theoretically examine a definitive and finite series of biological and environmental reactions and also, more importantly, explanations for these reactions. It is a theory that is capable of refutation or vindication through detailed scientific examination of its proposals. At present, this theory has yet to be fully validated by a large-scale examination of UFO events, but it holds out the promise of a solution to many types of reported UFO experiences, along with a host of paranormal perceptions such as ghostly manifestations and apparitions. British researcher Albert Budden is one of the main proponents of this theory, and more detailed information can be found in his books, *Allergies and Aliens* and *UFOs – Psychic Close Encounters*

2B:Mirage Anomalies

The difficulty in identifying viable mechanisms for plasma-form generation has resulted in some researchers suggesting alternative, natural origins for "true" UFO reports. One such hypothesis proposes that many (if not all) notable UFO sightings are instigated by anomalous mirages of first-magnitude stars and naked-eye planets, but also potentially of other suitable natural phenomena or man-made objects, such as aircraft, lighthouses, runway lights and so on. Mirages are among the oldest unconventional "conventional" phenomenon cited as an explanation for seemingly anomalous UFO events, being initially proposed by astronomer Dr. Donald Menzel back in the mid-1950s. His mirage-based solutions for various classic UFO events were always highly conjectural, depending on numerous assumptions and hazily-applied atmospheric and optical physics.

It was only with Stuart Campbell's work *UFOs: A Mystery Solved* (first printed in 1994) that definitive atmospheric mechanisms were firmly proposed for a mirage-based explanation for UFOs, along with a cohesive explanation schema able to potentially account for the great range of reported UFO characteristics through such a theory. Campbell's Astronomical Mirage Hypothesis (AMH) proposes that certain mirages can manifest a variety of rudimentary shapes, akin to those commonly attributed to UFOs, e.g. spheroids and lenticular forms, the exact shape manifested depending on the degree of "merger" between the two resulting images of the refracted object. This form of mirage could hypothetically manifest as a dynamically moving phenomenon, visible several degrees or so from the horizon. The existence of such extreme variations of conventional mirages remains controversial, with current

scientific wisdom only accepting mirages with an elevation of a mere half a degree, of objects located directly on an observer's horizon. The theory has however reopened an old debate about the actual boundaries of mirage phenomena, which will probably result in at least a few classic UFO incidents being re-evaluated.

The value of the astronomical mirage hypothesis is that it possesses definite parameters and causative elements and only involves fairly minor (and reasonably plausible) extensions of the current laws of optical and atmospheric physics. Furthermore, a mirage-image is potentially capable of apparent, albeit illusory, movement and speed impossible for any physical object. It also accounts for the nocturnal increase in the number of UFO reports and why the majority of events occur in rural areas, i.e. in areas of low light-pollution. Whilst it is able to explain "low" and "medium" definition UFO events to some degree, a hypothetical solution to UFOs totally based on mirages obviously has a hard time accounting for UFO-originated effects on humans, animals and mechanical devices, not to mention psychic aspects, entity experiences, abductions and the "Oz-factor". And what of incidents - high and low strangeness alike - where the perceived phenomenon was definitely seen in very close proximity to an observer? The only way such aspects of UFO behaviour can be explained by a mirage-based solution is to utilise the same concepts suggested by advocates of the radical misperception hypothesis, i.e. hoaxes, hallucination and hysterical reactions.

3: The "Unconventional Technology" Hypothesis

The world's various military establishments are in the forefront of development of technological innovations, in a continual quest to gain significant tactical advantages in future conflicts. This tactical advantage depends as much on secrecy as on hardware. Cutting-edge military technology often utilises concepts and ideas that are expensive to produce and have strict military applications only - the infiltration and elimination of hostile forces. The end result of this situation may be UFO observations initiated by a variety of unconventional military devices.

The most minor extent of such technology relates to the usage of non-standard aircraft lighting or camouflage configurations. This ranges from the unconventional running-light patterns occasionally employed by the Americans during the Vietnam War, to the often-exotic body-illumination sometimes utilised by air refuelling tankers.

The military are constantly striving to discover new and improved flight characteristics in order to achieve improvements in speed, size, manoeuvrability and reduction of infrared and radar signature. Many of these "concept" aircraft utilise lifting body, flying-wing or discoid configurations. Ancient examples of such technology include the AVRO disc and the "Flying Flapjack", with the SR-71, F117-A and the B-2 being more contemporary instances. Aircraft of this nature can only be rendered even more exotic when coupled with other innovative technology, ranging from sound baffling to visual "invisibility" systems utilizing miniature liquid crystal display units or laser "holography".

Remotely Piloted Vehicles (RPVs) are unmanned teleguided drone aircraft, usually only slightly larger than a model aircraft, mainly deployed for aerial reconnaissance

missions. The majority of RPVs use conventional aircraft bodies, but rocket, tub or disc shapes are also occasionally employed. Being small and remotely piloted, an RPV can perform high-g turn manoeuvres not practical in manned aircraft due to the stresses these severe, rapid turns place upon the human body. An RPV enacting such radical movements would look anomalous to an observer unaware of its actual nature.

The extreme in covert technology involves mind-altering devices that are sometimes grouped under the wider heading of Less Than Lethal (LTL) weaponry. These aim to neutralise the combat effectiveness of individuals by disrupting any number of neurological processes, such as perception and consciousness. They are reportedly based on a variety of technological processes; mind-altering stroboscopic lights, microwave beams, photon beams and highly concentrated ultrasound emissions. Other processes that are not electrically based such as exotic hallucinogenic or mood-altering gases also exist and can be utilised to achieve the same ends. The nature, extent and capability of these weaponry systems are currently little known, as the details relating to their research and development are (for obvious reasons) shrouded in maximum secrecy.

There have been several decade-old rumours relating to the supposed deployment of unconventional technology on the battlefield, as well as the testing of highly sophisticated "secret weapons". For example, both the so-called "Angels of Mons" of WW1 and the Foo Fighters of WW2 are alleged (without any real evidence) to have resulted from German psychological warfare technology. Furthermore, there were several rumours concerning the experimental use of car-stalling or death-dealing "rays" by both the Germans and the British during WW2. None of these claims have ever been verified to date. There have been few (if any) documented, verifiable examples of any major deployment of psychotronic weaponry, let alone any instances where it was successfully used, but it is commonly believed to have been in use in the Gulf War (1991), and quite probably in earlier confrontations.

Finally, there are ultra-modern technologies and aviation hardware employing notably exotic propulsion concepts and body-configurations. At its ultimate level this equates to a man-made flying machine with all the attributes of a classic "flying saucer". It has been proposed by some UFO researchers that recent new-concept aircraft (such as the B-2) employ technology based on crashed extraterrestrial spacecraft retrieved by governmental agencies. Even before this suggestion was made there was already a substantial mythology in existence pertaining to supposed man-made UFOs. The most extreme claims involve powerful, covert groups ranging from descendants of Nazi scientists hiding in Antarctica to Atlantean survivors residing beneath the earth and who have access to incredible technologies. Others have suggested the existence of a secret World Order who has deliberately nurtured a belief in alien visitors, in order to influence the world for their own (somewhat obscure) ends.

It is fairly obvious that unconventional aircraft, no matter how special, are unable to account for all "exotic" UFO reports. Although secret military devices can be very unusual in appearance and RPVs are notably more manoeuvrable than conventional aircraft, neither possess any of the other attributes associated with "true" UFOs. Furthermore, there is no evidence that any government has access to large numbers of unconventional aircraft that it uses solely to make repeated, low altitude flights over

foreign countries and populous cities! The high expenditure alone required to develop and build a new-concept aircraft makes this prohibitive, even on an extremely generous "black" military budget.

Whilst it is true that some UFO effects can be explained in terms of novel technical processes known to at least a rudimentary level by contemporary science, they require extreme conspiracy theories to explain how and why they are deployed in the manner suggested by UFO sighting claims (i.e. repeatedly used against private citizens and their property in public areas). These "solutions" become even more untenable when considering exotic aspects of the phenomenon such as UFO occupants, psychic aspects or "Oz-factor" manifestations, unless we allow for a military involvement in covert, large-scale psychological/psychic experiments using the citizenry as test-subjects. Some researchers will assure you that this is exactly what is going on. In the real world, most unconventional hardware would be confined to military exercise zones and proving grounds, although aircraft (especially remotely controlled hardware such as RPVs) may well, more through accident than by design, leave the confines of such areas.

Most ufologists currently accept that unconventional military technology is a cause for at least some "true" UFO events, but those few events that can be so potentially explained do suggest the possibility that other incidents less obviously explicable in these terms also have such a cause. The proportion of sightings that covert technology may account for depends on how advanced secret military technology truly is and how often such hardware is deployed. In reality, all cases originated by military technology are in essence merely high class IFOs, elevated to a higher apparent status only by the virtue of the secrecy surrounding them.

4: The Extraterrestrial Hypothesis

It is difficult to accept that UFO events relating to claimed observations of a domed-disc or other elaborately configured UFO with an apparent metallic surface and detailed surface features such as "portholes", "jet-pods", "antenna" and so on could be instigated by a plasma-form phenomenon or any other mundane effect. This supposition is further confounded by instances of UFO occupants being reportedly seen within, entering and exiting such UFOs. All such evidence can only reinforce the conviction that they are anomalous constructs of some kind. Observations of such exotic UFOs are potentially one of the most profound elements of the UFO phenomenon; however, they can also, paradoxically, be among the most subjective. They are often observed only at one location by only one person, usually in an area of low-population, and have never, despite thousands of sightings left any incontrovertible proof in their wake. Thus, the possibility exists that these reports may represent a purely subjective experience, akin to a hallucination. The fact that we have reports of many different types of "flying saucer" could suggest that we have as many types as the mind is able to conceive.

Nevertheless, a few of these "exotic" reports do appear to involve more than one witness and are associated with both physical traces and photographic evidence. Indeed, some of the most noteworthy, potentially authentic (and also most controversial) UFO photographs depict such forms. If it is deemed at least possible

that some UFOs may be anomalous physical constructs, ufology is left with the problem of finding a source of origin for these devices. Their attributes suggest that if they are constructs they must be very advanced ones, their technology exceeding that known on our planet today. Therefore, if nothing on earth, to our knowledge, could manufacture anything with the attributes of such a UFO, it leaves only sources other than our planet as potential points of origin for such devices.

The Extraterrestrial Hypothesis (commonly known within ufology as the ETH) proposes that such exotic UFOs are spacecraft originating from another solar system, manufactured by an alien society possessing technology at least several hundred years ahead of our own. The amazing motion attributes of UFOs are derived from various advanced technologies, using power and propulsion systems considerably more efficient than those currently known to humanity. Other effects, ranging from colour changes to claimed close encounter effects, are deemed to be by-products of the spacecraft's power/drive system(s). The ETH views claimed observations of UFO occupants and abduction incidents as being literally true; the occupants are viewed as the pilots of these craft, and the harvesting of human genetic material referred to in many abduction accounts is considered as being an important (if not the main) reason for extraterrestrial visits to earth.

As stated in the "radical misperception" chapter, the popular conception of UFOs as extraterrestrial craft became a major force in western society at the very dawn of the space travel era, the atomic age and the Cold War. All these factors made belief in alien visitors seem more viable at this time than at any other time during our planet's long history. Today, both on a popular level and within the UFO research community, the conviction (or the refutation) of an extra-terrestrial constituent to the UFO phenomenon dominates all aspects of the subject, at every conceivable level. This interpretation of UFOs has come to dominate discussion of UFOs to such a degree that both the general population and many UFO researchers cannot conceive of UFOs without automatically assuming them to be a consequence of extraterrestrial activity. It has become, especially in recent times, such a strong, social force within popular western culture that belief in the existence of alien life is taken for granted, and often based on UFO mythology rather than on the latest scientific findings regarding possible extra-solar life. The conviction is so powerful that critics of the extraterrestrial theory feel it has coloured many sighting accounts, and are able cite numerous instances where this has seemingly occurred.

The majority opinion of contemporary science is that life probably exists somewhere else in the cosmos, other than on Earth. The size and the age of the universe (around 9-12 billion years) and the tremendous number of G-type (i.e. Sun-like) stars contained within it, gives massive scope for the formation of life. The fact that the various chemical elements essential for the formation of life as we know it are present throughout the universe, such as carbon, oxygen and water makes the prospect of extra-solar life almost certain. This view can only be further consolidated by the recent discovery of distant proto solar systems and possible instances of extra-solar planets.

However, the conceptual gap between the presence of life in the cosmos and the existence of advanced alien societies able to construct UFOs is still a massive one. Firstly, extra-solar life must evolve into a form that is sentient to a level equal to that

of mankind's, and then develop a technological civilization more advanced than our own. Both steps are littered with numerous caveats. Is human-like sentience a common consequence of evolution? Prehistoric Earth teemed with various life forms that existed for hundreds of millions of years, none of which, however, were "gifted" with human-like sentience. Is the development of an advanced technology-using culture always a consequence of sentient life? Mankind - for the majority of its existence - only possessed stone-age level "technology", our present technological era comprising only the tiniest fraction of our species history.

Finally, even if an extra-solar species develops both intellect and an advanced technology, their culture must fail to succumb to the diverse potential hazards encountered by (probably) all technical civilizations; catastrophic ecological and geophysical changes, nuclear war, over-population and exhaustion of natural resources. Not only must they survive these hazards, they must triumph over them, and develop a technology well ahead of our own. They must also possess an urge to explore space; can we be sure that "curiosity" is a cosmic constant, or that extraterrestrial minds have the same priorities and dreams as mankind? Lastly, there are the results of our admittedly limited quest to locate extra-terrestrial civilizations. Although astronomy has found much circumstantial evidence to support the conviction that life does exist elsewhere in the universe, it has never (to date) stumbled on anything suggestive of intelligent, let alone technologically advanced life. Every SETI (Search for Extra- Terrestrial Intelligence) research effort conducted to date has found no evidence for radio-using aliens, and no astronomical observations have been made, or artefacts discovered that convincingly demonstrate the existence of technological extraterrestrials.

However, the most major problem facing a prospective race of star farers are the restraints placed upon interstellar travel by the laws of physics, as we understand them. It takes light around four years to reach us from our closest stellar neighbour, Alpha Centauri. Contemporary physics is certain that nothing can travel faster than light (at least in the "conventional" manner). Objects considerably heavier than a photon - such as the most highly advanced theoretical spacecraft design our technology can conceive - would be limited to speeds considerably slower than this, which, it must be remembered, is hundreds of times greater than what our space rockets are capable of today. To illustrate the reasons for this, let us suppose that some civilization somewhere in the galaxy develops a highly advanced propulsion system capable of incredible speeds for prolonged periods. As this (hypothetical) vessel attempts to accelerate to a speed approaching that of light, physics predicts that it gains inertial mass, resulting in the craft having to increase its thrust by an exponential rate to compensate. Eventually, this situation becomes untenable as the star ship attempts to reach a velocity equalling 99% of light-speed. The energy required to move a craft at this rate of momentum equals infinity, and is probably therefore unattainable!

However, this in itself does not rule out interstellar travel, but limits it to Slower-Than-Light (STL) velocities of around half the speed of light. In this circumstance an average star voyage would take decades or hundreds of years, depending on the star ship's rate of speed. If it were possible to move at speed equal to 80%-90% of light speed - maybe by (somehow) reducing a vessel's mass to almost nothing - time dilation could be utilized for space travel. This effect would result in time passing at a

slower rate within such a star ship than in the outside universe. Although time dilation would allow astronauts to survive long stellar voyages (aging "only" a few tens of years in the process), time would pass at the normal rate on their world of origin. On their return these astronauts would discover that hundreds of years had elapsed on their home world.

If life forms throughout the universe are restricted to slower than light speeds, it greatly limits the extent to which interstellar travel could be utilised. It probably renders any economic exploitation of interstellar travel largely invalid (what shareholder would wait three hundred years for a return dividend on a cargo?), an important factor to consider, as commerce is the main reason for anyone to travel anywhere! An alien space endeavour of this nature might resemble the "only for science and supremacy"- based efforts of the Russian and American space programmes. Although these generate a small income for the countries involved and result in many technical spin-offs they are heavily criticized for being non-productive and, as a consequence, either grossly under funded or axed. But if aliens do exist, so far in advance of our own evolutionary development, how could we even begin to guess at their motives, for anything?

Faced with such problems, ETH advocates suggest UFOs employ Faster Than Light (FTL) propulsion systems in order to traverse interstellar space in comparatively short periods of time. One suggestion involves utilising space warps, a hypothetical effect that would allow instantaneous travel between two selected points in the cosmos, by interconnecting them via a temporary distortion in the space-time continuum. Our current understanding of such processes allows for their theoretical possibility, but also shows that they would require monstrous levels of power to initiate, equal to that generated by a supernova explosion. This (in comparison) makes travel at 90% of light speed a realistic aspiration! Given the massive energies required, both STL and FTL star ships would represent a considerable potential hazard to any worlds they encounter. A STL star ship impacting a planetary surface whilst moving at any percentage of light-speed would inflict massive global destruction upon that world, due to its tremendous kinetic energy potential. A FTL "space warping" vessel would require access to even greater levels of power, literally making that craft a potential "death-star".

However, there is one possible solution to the problems of interstellar travel consistent with our current scientific understanding, one that also, incidentally, allows for a viable extraterrestrial element to the UFO phenomenon. The alleged sudden decelerations, accelerations and high-speed turns exhibited by UFOs, and the length of time the phenomenon has been on-going without any formal contact occurring is consistent with the suggestion that a few "exotic" UFOs could be self-aware extraterrestrial robotic devices. A highly advanced construct of this nature, manufactured from a self-repairing material, would not be impeded by the inconveniences experienced by biological organisms travelling at STL speeds. Being virtually indestructible, it could both traverse great distances and be capable of conducting extended surveys of destination worlds. The only problem it might conceivably face is the requirement to return information to its place of origin. This could be done either via a radio or laser-beam, which would send this data back much faster than the robotic device could physically travel. Furthermore, it would have no

urge (and no need) to contact the subjects of its study, or a psychological compunction to return home, possessing only the directives programmed into it by its makers.

The lack of any full-scale contact between extra-terrestrials and humanity is often cited as one of the prime deficiencies of the ETH. However, as the above possibility infers, it is not the major negative factor that it appears on initial consideration. Any ET race (biological and/or mechanical) that discovers our world would need to balance the benefits of open contact with the possibility that this action may destroy earth's unique culture and way of life. The fates of the Australian aborigines and the native north (and south) Americans are graphic examples of the disaster that can result when two cultures of widely differing technological levels and social systems encounter each other. It may also be that the earth itself could be as interesting, or more so, than its inhabitants. If inhabitable worlds are rare, an extraterrestrial race may be keen to discover the reasons why our world is an exception to the general rule. They may be interested in monitoring the climate changes resulting from our increasing technical sophistication (such as the greenhouse effect, ozone layer depletion or other phenomena we have yet to experience), in order to gain valuable insights into their own past.

The humanoid appearance of most alleged UFO occupants makes them difficult to accept as being genuinely extra-terrestrial in origin. Both their manlike form and the ease in which they appear to cope with our world (an environment in which they themselves would not presumably have evolved) infer they originate from a planet with an almost identical climate, gravity, chemistry, biology and atmosphere. Additionally, the large number of different UFO entities appears to suggest that there is not just one "twin earth" elsewhere in space, but at the very least, several more. The chances of another world possessing near-identical conditions to earth occurring twice in our universe (let alone many times) are unlikely at best. The humanoid appearance of UFO entities shares many similarities with the cinematic B-movie/TV tradition of "space-men", human-like extraterrestrial entities possessing only relatively mild cosmetic differences in comparison to us. Variants of the ETH, such as the concept of UFOs being self-aware robotic devices, require ufology to discard the vast majority of entity and abduction cases, the very claims that encouraged belief in the ETH to begin with! UFO entity encounters have now become such a major component of the UFO phenomenon that many ufologists would doubtless be loathe to dismiss them as being a valid anomalous component of the subject.

Furthermore, the considerable length of time the UFO phenomenon has continued suggests a massively funded space programme on the part of the hypothetical alien culture(s) responsible. Compare the fifty plus years in which the concept of UFOs has existed, with Project Apollo, which lasted only for a mere half a decade and resulted in only six landings on the moon before its cancellation due to its colossal expense and its dubious scientific merit. This problem, again, can be sidestepped by the concept of self-aware robotic UFOs that could sustain their own space exploration efforts indefinitely, given a reasonably abundant source of raw materials, such as, for example, our asteroid belt. However, the vast range of different UFO types (and their alleged occupants) poses serious problems for any version of the ETH, being explicable only in terms of many visits from many different alien cultures. This would only be the case if the extra-terrestrial component to the phenomenon was highly active, a situation which contradicts the lack of physical evidence relating to "exotic"

UFO events. Another option is to reject a sizeable proportion of this contradictory data. This, unfortunately, would equate to rejecting a sizeable proportion of the UFO phenomenon. Given that no clear evidential datum exists to ascertain the validity of UFO events, how would we know what to reject and what to accept?

There also aspects of the UFO phenomenon which are difficult to account for in terms of a strictly materialistically-based interpretation of the ETH. What, for example, of the links between UFOs and psychic phenomena? What also of the "Oz factor", which, paradoxically for the ETH, is often reported in association with "exotic" UFO encounters? Many of these aspects of ufology are so markedly a part of the UFO phenomenon that they cannot simply be ignored, in the same way that entity claims cannot be discarded out of hand merely because elements of these experiences are inconsistent with an extraterrestrial origin.

In summary, the ETH is a theory that has some good (if indirect and circumstantial) cosmological evidence to support its viability. At the simplest level, it is a theory that can be valid without requiring major revisions in our current understanding of cosmology or physics, or the existence of the supernatural. On the other hand, this theory's actual evidential basis (the UFO reports themselves) seems, ironically, to be the ETH's weakest element! The lack of irrefutable physical evidence for any alien presence on Earth has always been the Achilles heel of the extraterrestrial hypothesis. This problem both affects the conventional ETH involving star faring biological entities and the revised interpretations of it, such as the alien space-probe theory. That stated, the potential of an extraterrestrial component to the UFO phenomenon could never be fully discounted, even if all current UFO events can be better explained in other ways. The possibility would always remain for extraterrestrial visitors to be the cause of future UFO incidents.

5: The Alternate Universe Hypothesis (AUH)

The problems inherent within the ETH have not gone unnoticed by some UFO researchers. However, those who accept that "exotic" UFO reports have a physical causation (and discount the possibility that these events have a natural explanation) obviously still require a viable source of origin for them. Thus, it has been proposed that such "exotic" UFOs may originate from some alternate realm, separate but adjacent to our world. But to make this a theory worthy of consideration the nature of this hypothetical other realm must be scientifically defined. Could this realm be another dimension additional to the long accepted four of length, breadth, depth and time? Some modern cosmological theories do indeed allow for the existence of more than four dimensions; in fact many of the problems in modern physics involving subatomic matter, light and gravity can only be resolved if their existence is posited! For example, super string theory predicts the presence of a further six dimensions. However, according to current scientific thinking, as a direct consequence of the "Big Bang" these higher dimensions cannot be perceived, having compacted into an area hundreds of billions of times smaller than an atom, while the remaining four familiar dimensions have expanded. It is therefore unlikely that they could be the source of any alien technological culture.

However, a new cosmological concept does present us with another potential realm that other life forms could viably inhabit. The existence of alternative universes is a logical consequence of several cosmological theories. These theories conceive of an ultimate reality comprising a myriad of universes, each sealed from the other within their own "bubble" of space-time, all of which reside within an empty, timeless void. The fact that conditions suitable for life arose in our universe at all is one good reason to consider the viability of a "multiverse". Because our universe has formed in such an ordered state, when even the most subtle subatomic difference could have kept it in lifeless disorder, it suggests that billions of other, mostly "failed" universes may exist, in order for our own to have arisen as the result of chance, random natural processes. Consequently, the organization of matter in these other universes would greatly differ from that within our universe, mostly in ways contrary to the formation of a structured cosmos.

It has also been suggested that transitory connections termed "wormholes" could occasionally, via natural chance processes, form between any two of these (hypothetical) universes. A wormhole is the name given to a hypothetical fold within the fabric of the space/time continuum, spanning two points in the universe (or, in this instance, connecting two separate universes) which theoretically could allow instantaneous travel to and from the locations linked by that wormhole. The fact that humanity has never noticed their existence is attributed to them being transient manifestations, billions of times smaller than a sub-atomic particle, occurring over a period of billions of years. However, some have disputed whether wormholes are always this unstable, and even allow for them to theoretically possess diameters wide enough for a physical object to pass through.

However, let us suppose that one of these theoretical alternate universes were inhabited, and those who resided within it were somehow aware of our existence, or at least the possibility of it. Let us also suppose this culture was sufficiently advanced to construct an artificial wormhole. To begin with, such a process would require a power-source of stellar proportions to sustain it. Furthermore, this culture would then have to devise a way to link this wormhole to another universe, and make it both wide enough and keep it open sufficiently long to permit travel through it, a highly complex task, assuming that the majority cosmological view on inherent wormhole instability is correct. Furthermore, they would also have to cope with the notably intense radiation believed to be associated with such wormholes. However, any device sent through such a wormhole would not itself require massive levels of power, the probably massive wormhole generator existing somewhere "off stage".

Presently, nothing overtly suggests that any UFO event is the result of such a hypothetical and extremely speculative scenario, although a few aspects of UFO behaviour are potentially consistent with this concept. There are, for example, reports of some UFOs that vanish, or appear suddenly in a clear sky. Additionally, the "Oz factor" could possibly be a consequence of an artificial, or even a natural wormhole-like phenomenon, given that the Oz factor reputedly involves apparent distortions in the flow of time and other spatial and perceptual anomalies. However, neither of these two elements is sufficiently evidential in itself to render viable such a wild theory. Allowing for the existence of cultures able to utilise traversable wormholes does, however, remove the "massive distances of space" objection that affects the ETH. In reality though, the existence of wormhole-traversing UFOs is as unsupported

by convincing physical evidence as is the spacecraft-UFO postulated by the ETH. It should always be remembered that wormholes and other universes are only hypothetical concepts, for which no conclusive physical evidence currently exists. Speculative cosmological theories such as these have often been rendered obsolete as our knowledge of the universe increases.

6: The Time Travel Hypothesis (TTH)

Some of the problems of the ETH are sidestepped by the Time Travel Hypothesis (TTH), which (like the AUH) allows for the existence of structured, "exotic" UFOs. The premise of the TTH is that exotic UFO reports represent the time machines of a future human civilization. As previously noted in the preceding discussion of the ETH, UFO occupants seem to cope too well with our environment and the majority are too close to ourselves in their morphology to be extraterrestrial. Therefore, could both these factors suggest that some UFO occupants represent variant human forms from our race's distant future? Could the wide variety of UFO types actually be time machines from different future eras, visiting the same time period? Could the sudden disappearances of some UFOs, and also the alleged chronological anomalies associated with "missing time" and the "Oz factor", suggest some UFO events result from the endeavours of a society with time travel capabilities?

The archetypical "grey" UFO entity is slightly more believable when considered from this theoretical perspective. Various projections for mankind suggest humans in the very distant future may eventually, as the result of living in a sedentary, intensive machine-using culture for thousands of years, evolve longer fingers, greater brain-mass possibility resulting in a head larger than our own and a physically underdeveloped body. Additionally, if the "greys" were a future variant of homo sapiens sapiens, their body-chemistry would obviously be more compatible with that of humans than if they were extraterrestrials from a distant star system, thereby rendering the allegations of UFO occupants "harvesting" human reproductive matter a little more credible.

That stated, it should never be forgotten that, as with the existence of other universes, the concept of time travel is merely a theoretical one, often more based in philosophy and science fiction than in physics. Orthodox science views travelling back in time as either a total impossibility, or at best a theoretical, if remote, possibility barely existing in the extreme fringes of avant-guard physics. In regards to UFO reports, the TTH shares many common elements and implausibilities with both the ETH and the AUH. As is the case with both these theories, the TTH requires the existence of physical craft that are perceived as UFOs by observers unaware of their true nature. This being so, the TTH suffers, as does the ETH from a dearth of objective evidence to support its validity; this theory not being governed by any physical principle prohibiting these hypothetical time machines from being repeatedly seen and photographed by large numbers of observers.

Furthermore, the TTH suffers from a notable drawback from which the ETH itself is free; the very basis of its viability, i.e. the possibility of backwards time-travel may

well be forbidden by the laws of physics. The main objection which contemporary science has regarding time travel is that it violates causality (the law of cause and effect), involving as it does devices or individuals from the future, whose most minor action could disturb the previously enacted version of the past, which itself gave rise to this future time-travelling civilization. Serious violations of the law of causality are cited in numerous science fiction tales, such as people going back in time to kill their great-grandfathers, major historical figures or even themselves or, more benignly, to marry their great-grandmothers!

However, even if the consensus view of modern-day physics is wrong and the past can be visited by future civilizations, another serious objection to the TTH remains; the lack of any incontrovertible evidence of visits by time travellers within the annals of history. There are no accounts of the use of anachronistic technology or of people possessing anachronistic knowledge from the records of any past era. While there are some notably unusual artefacts originating from the distant past such as Stonehenge, the Pyramids, the Antikythera mechanism and also the so-called "Baghdad battery", they are not sufficiently unusual in themselves to require time travellers to account for their existence. However, it is possible to explain away the lack of evidence for time travellers as due to a continual fear (on the time-travellers' part) of changing the past in a way that results in them and maybe also the future that generated them suddenly "winking" out of existence!

Furthermore, even if backwards time travel were possible, this would not in itself automatically mean that some UFO events involve time machines. Some conceptions of time-travel suggest that a time machine could only visit alternate versions of the past, as the very act of visiting a past era, which was not originally visited by a time machine, "creates" a second version of that past time, which was visited by a time machine! As a result, any changes to the past resulting from this visit would only effect the alternative version of the past, not the original. Obviously, if time travel did work along such lines, it would be impossible for observers from this original timeline to encounter time machines under any conceivable circumstances.

Results garnered from sub-atomic physics experiments suggest that a time machine would disassemble itself back into its constituent atoms the moment it reaches a time pre-dating its construction. This, again, seems to rule out the TTH in regards to UFOs, as the capability to build time machines would (if actually within the bounds of possibility) be the product of a highly advanced future society. Hence, any time machine this civilization could construct would be unable to travel back to our era, as it clearly predates this hypothetical future age. However, it has been suggested that humanity might discover, sometime in the future, a time machine constructed hundreds, thousands even millions of years previously by an advanced extraterrestrial civilization. Theoretically, such an artefact could be used to travel back to any period of earth's history not predating the time of its construction. Although this intriguing possibility is consistent with our current understanding of time-travel physics it is little more than science fiction-level speculation, seemingly unsupported by any aspect, element or attribute of the UFO phenomenon.

In summary, the TTH is an intriguing theory of UFO origin, in more ways than one. A few of the more exotic aspects of the phenomenon could be potentially explicable in this way, but this hypothesis depends on, and of necessity evokes so many

convolutions of both logic and physics it is a concept that will remain merely a concept until we have a clearer idea whether backwards time travel is possible, or not.

7: The Paranormal Phenomena Hypothesis (PPH)

The term "paranormal" can be applied to several diverse types of purported anomalous experiences, ranging from telepathy, psychokinesis and precognition to alleged encounters with poltergeists, apparitions and other supernatural entities. Paranormal phenomena have, at the very least, a definite peripheral connection with ufology, given the considerable number of high strangeness UFO events associated with various forms of psychical manifestations. The occurrence of such phenomena raises the questions both of why they occur within the context of a UFO experience and whether they are the result of currently unrecognised natural processes, actual "psychical" manifestations (external or internal to the witness) or the product of a culture possessing a seemingly magical technology.

Many materialistic ufologists dismiss any connection between UFOs and the paranormal, as this is inconsistent with a strict "nuts and bolts" interpretation of the phenomenon, such as is espoused by most versions of the ETH. However, this automatic rejection is incompatible with a truly objective approach. If a witness reports an effect, it is a claimed aspect of the phenomenon and therefore must be considered in any objective attempt to account for UFOs. Rather than being a hindrance to an understanding of "true" UFO incidents, an examination of the "psychic" aspects of the subject could well aid our study. This may eventually lead to three possible outcomes; that the psychical elements of ufology are fairly minor and can be mostly ignored, that the subject involves a combination of psychical and non-psychical elements, or the majority of the more exotic UFO events are full-blooded "paranormal" manifestations. The first step in such a process is an examination of the various forms of supernatural phenomena, in order to determine what common elements they share with "true" UFO events. Whatever the outcome of this process, it would both aid our understanding of why some UFO events involve psychical manifestations and, as a consequence, our understanding of UFOs themselves.

7A:UFOs as Apparitional Phenomena

Apparitions, commonly termed ghosts, are a long-standing form of anomalous experience, instances of which have been recorded over many hundreds of years, by virtually every culture on earth. The majority of these events involve the observation of a fully animate human-like form sometimes attired in archaic clothing and associated with a variety of outlandish attributes; it may be observed passing through walls or other solid obstructions, or to glide or walk a few feet above the ground. Many apparitions are also reported to literally disappear suddenly into thin air whilst in full view of the observer. A specific apparition is often associated with, or said to haunt a specific locale, where it may be repeatedly observed over an extended period of time. These apparitions are claimed to repeat the same actions each instance they are observed, e.g. to follow the same pathway or route through a dwelling, even to vanish on reaching the same specific spot.

The folkloric explanation for ghosts is that they are the unquiet spirits of the dead, trapped on earth for a variety of reasons (either as the result of a sudden, violent death or not having the correct funeral rites performed, and so on). However, some elements of apparitional phenomena appear to hint at a more materialistic explanation than restless souls. The fact that ghosts pass through walls, or appear to be partially hidden by or float above the ground they traverse can often be explained by changes to the haunted area occurring after the time period that seems to have engendered them, such as floors being raised or doors being walled up. Both this, along with the fact that a specific ghost is often observed repeating the same mundane actions, suggests that at least some apparitions are forms of "recording", not unlike images captured on magnetic tape, and based on a process that currently eludes human understanding.

Some psychical researchers have suggested this effect involves certain types of stone, especially crystalline structures, perhaps in combination with other suitable forms of matter such as bodies of water, whose composition is amenable to storing this "recording". It is further postulated that apparitions result when this "recording" is activated by specific environmental factors, such as a rare combination of weather conditions and/or various forms of geophysical activity. However, essential to this process is a person able to perceive this "recording". Both the creation and perception of this "recording" would be likely to utilise telepathy, the supposed psychic (or Psi) ability involving the transmission and reception of thoughts, images and sensations between one person and another, sometimes at great distances, using a means divorced from all known forms of natural or artificial communication. Conventional telepathic experiences are often reported to occur when the perceiver is in a restful state, and many relate to crisis situations such as accidents involving a person known to the one experiencing the telepathic event. Other instances involve deliberate attempts at telepathic communication in parapsychology laboratories, again involving individuals in a relaxed state, or an artificially induced condition of sensory deprivation.

To many people, this solution is too unnecessarily complex, involving as it does a process of recording environmental stimuli currently rejected by science, not least because it has yet to be convincingly demonstrated or duplicated under laboratory conditions. The fact that it depends on telepathy, a psi ability (like all other claimed psi abilities) whose existence is, again, rejected by science makes this so-called "stone tape" explanation for ghosts untenable in the minds of many people. The scientific community feels that apparitions have a more simple explanation. To begin with, there are as many potential spurious causes for ghosts as there are for UFOs; false shapes being read into random patterns of shadow and light, patches of mist, swarms of insects, shirts on washing-lines, people in fancy dress and various classes of hallucinatory effects.

However, whatever the causes of apparitions they retain considerable importance in regards to the understanding of UFOs, if only because these events are useful in terms of comparison, being a separate type of anomalous experience. However, there are distinct indications of apparitional aspects in some close encounter experiences. Ghost-like behaviour is reportedly exhibited at times by both UFOs and their supposed occupants; UFOs may suddenly appear or disappear, or are seen to float, and some UFO entities are reported to move by floating or gliding a short distance

from the ground, as well as having transparent forms, appear and disappear suddenly or pass through solid objects. The "OZ factor" is related in some ways to the aura of uncanniness sometimes associated with apparitional experiences. There are as few (if any) mass observations of ghosts as there are mass UFO close encounter events, apparitions often only being observed by a few select people out of a larger group of potential witnesses, those whom some parapsychologists deem to be "psychically attuned" to the apparition.

As well as similarities, there are also some obvious differences between UFO sightings and "conventional" apparitions. Ghosts do not, for example travel at great speeds or exhibit sudden changes of colour. Furthermore, the same apparitions are seen repeatedly at the same locations, an attribute which they do not appear to share with UFOs. That said, notable "repeat" UFO activity occurs within limited geographical areas (UFOCALS), and many close encounter witnesses report a long, on-going chain of apparitional and psi events, as well as repeated UFO encounters. In such instances it could be stated that the UFOs experienced by such repeater witnesses are effectively "haunting" the percipient! Some apparitions are also associated with effects on physical objects, but neither to the same degree nor extent as those attributed to UFO close encounters. Another very major way in which UFOs do differ from apparitional phenomena is in their one-off nature, unlike the majority of apparitions which, as previously stated, are repeatedly seen in the same limited locale over an extended period of time. This suggests that either the concept of UFOs as apparitions is a flawed one, or that "apparitional" UFOs work on different principles to conventional phantoms.

Therefore, in what ways could the various mechanisms potentially able to generate apparitional experiences be responsible for certain exotic UFO events? It is known that although the majority of apparitions relate to observation of human figures, there are also a few reports of phantom buses, ships and aircraft, hence allowing the apparition-generating process to evoke inanimate objects. However, all of these events involve "objects" which once had a definite existence in the material world, such as a Spitfire, a London bus, a clipper ship, etc. It is unheard of for people to observe apparitions of things that never existed on earth sometime during its history (although there are few, if any, claims of "ghost dinosaurs" or other prehistoric life forms!). Thus there is a further indication that if some UFOs are the result of apparitional effects, they must involve markedly unconventional ones! The way and means in which apparitional phenomena could be related to UFOs basically depends on the actual nature of apparitions themselves.

A1: If we were to accept that exotic processes such as the "stone tape" effect do not occur, then some UFO experiences may involve the same hallucinatory processes involved in apparitions, but framed within a different context (hence explaining both their differences and similarities). Ghost images of people behave like people and phantom aircraft behave like aircraft because this behaviour comes from a store of expectation (based on common experience of people and aircraft) held within the brain. Likewise, images of spacecraft would behave in the manner spacecraft are believed to behave by popular culture, such as moving at fast rates of speed, hovering and so on. In this perspective, ghosts (and some UFOs) are a form of "waking dream" experience, triggered by physiological and perhaps also geophysical and meteorological factors. Even if some apparitions are the result of natural albeit exotic

"recording" effects, it is likely some ghostly phenomena would still involve the above comparatively mundane psychological processes, hence allowing for a similarity between these experiences and subjective UFO-type experiences which utilise the same neurological processes. Furthermore, this view would not require such UFO events to be explained in terms of telepathic-based phenomena.

A2: Another possibility is that some apparitions involve an unusual natural cause other than the "stone-tape" effect. If geophysical features such as earth faults are capable of generating UFO-like phenomena, could they also be responsible for some ghostly experiences? This suggestion is made plausible by the fact that many apparitions are notably vague and basic in appearance with many accounts involving stereotypical misty, luminous white ladies or dark forms reputedly resembling cowed monks. Could repeat low-level earthlight manifestations occurring within a specific locale be interpreted by those unaware of their true nature as spectral activity? In this context it should be noted that a considerable number of ghost origin legends, such as, for instance, the tale of evil squire Travellion who murdered a girl on Dartmoor in the 1700s, where her phantom wanders to this day, often turn out to have a highly dubious historical basis. Could a re-occurring, geophysical effect result in such stories being invented to account for the event? There are many instances within history of legends being composed to explain various meteorological, geological and biological phenomena.

The process, which could result in an earthlight being perceived as an anthropomorphic figure, may easily involve the natural tendency within the human perceptual system of subjectively reading ordered form into suitably irregular natural manifestations. More exotically, exposure to electrical emissions from an earthlight could induce vivid hallucinatory experiences in any person encountering it or, perhaps, only within specific individuals. If this effect only occurs within a select number of UFO/apparition witnesses, repeated, anomalous (but subjective) experiences involving only a small percentage of individuals may well result whenever a suitable geo-electrical "imbalance" occurs within the witnesses' locale, possibly also involving influences other than earthlights. This would effectively account for the high-strangeness UFO repeater percipient whose experiences often appear in the main to be subjectively based. The concept of "ghosts as earthlights" would both account for the tendency of apparitions to haunt specific areas (also their repeated, limited "path of motion" and sudden disappearances), as well as the tendency of certain classes of UFO events to cluster around specific regions, with both these phenomena being generated by localised earth faulting.

A3: Some UFOs could involve apparitional-like phenomena originating from the future. Several possible instances of this have been recorded in the annals of parapsychology. Another form of parapsychical experience, precognition, involves apparent foreknowledge of events experienced sometime before their actual occurrence, hence the concept of experiencing knowledge and perceptions from a future time is not alien to psychical research, but a long-standing, integral part of it. A particularly stunning form of apparitional experience called a time slip in some ways resembles a conventional apparition, but involves the whole observed environment appearing as it may have been in the past. Particularly noteworthy are that some of these claims involve effects similar to that of the Oz factor, which strongly suggests a common link between these two phenomena. However, there are no known instances

of people seeing futuristic landscapes during UFO experiences, which, other than the occasional Oz-factor related "distortions", remain contemporary in appearance. The possibility of some UFOs involving "future phantoms" need not involve telepathy, precognition or any other paranormal phenomenon, as it could just as easily arise from natural but currently unrecognised transient distortions within the space-time continuum. It may result, for example, from a malfunctioning FTL drive system created by our descendants, given that many proposed FTL concepts involve travel by way of distortions within the space-time fabric.

A4: Aspects such as the Oz factor and repeater witnesses may involve exposure to telepathic, or telepathic-like "transmissions" originated by extraterrestrial or other life forms. Such a concept, of course, is only valid if telepathy exists and can be used as a reliable mode of communication. The fact that many close encounter witnesses report only images which pre-exist within western popular culture, such as humanoid aliens, flying saucers and so on, would possibly result from conceptual reconstruction of the putative telepathic message being visualised by the participant's brain, either because of differences between the thought processes of aliens and humans, or the limitations of the telepathic communication process. If this process has limitations, it may be utilised despite them if it permitted faster-than-light communication, swifter than either radio waves, laser beams or neutrinos. The most notable element which appears to throw doubt on this theory, other than it requires both the existence of aliens and telepathy, are the worthless, even banal nature of communication supposedly resulting from this process, involving nothing more than visions and useless contactee platitudes giving us no real information concerning those who send these message, and in fact giving us nothing that we didn't know already. This may be accounted for by stating these effects result from incidental and accidental exposure to such a signal, which has been transmitted for other reasons than direct communication with human beings, such as a remote viewing based scan of the earth's surface. As with all paranormal based explanation schemas, the concept of "alien telepathy" is both difficult to either prove or disprove, making its scientific veracity somewhat doubtful.

It is unfortunate that the possibility of a link between some UFO experiences and apparitions is an area which is neglected by both parapsychological and ufological research, doubtlessly due to the rigid paradigms and conceptions which dominate both subjects. As with all psychical-based theories, examination of this possibility is hampered by a lack of understanding of the processes responsible for apparitions. Orthodox science remains unconvinced of their reality, dismissing apparitions as being hallucinatory in nature. However, as previously stated, even if this is true it does not excuse ufology from examining common links between apparitions and UFOs, as closely-related neurological processes could well be involved in both classes of experience.

B: UFOs And The Collective Unconscious

It has been suggested by a variety of commentators (notably Carl Jung) that the totality of human minds upon this planet may, on a subconscious level, form a large interlinked awareness possessing shared values and ideals, along with a common store of symbolic representations of these concepts. This collective unconscious may

comprise solely the minds of humanity, or the totality of all living organisms upon this planet. This "greater mind" is often deemed to exist both everywhere and nowhere, being composed, much like a parallel computer system of a mass of smaller units of varying complexity, ranging from ants to humans. The existence of a collective unconscious may also account for the existence of telepathy, as it would make an ideal communication medium to integrate these diverse elements as a unity.

If this collective mind does indeed exist, some UFO events might involve manifestations of this unity of consciousness, either representing attempts to alter our level of consciousness or the enactment of some form of psychodrama. Either of these possibilities could well be related to the sudden devaluation of past archetypal concepts and major changes in the human perspective resulting from comparatively recent scientific discoveries. This group-mind may be using the new "dream" symbols of our contemporary scientific age (i.e. flying saucers and space-alien) to update its old ones in order to express the new fears and hopes of mankind- the dread of nuclear war, climate change and species-extinction on one hand, and the dream of easy interstellar flight and magical technology on the other. This might be an attempt to expand the consciousness of mankind, allowing the group-mind to further increase its level of awareness. This mental unity might create UFO experiences through purely subjective processes, or via a visible intermediary such as a ball of light-type phenomenon. By aiding mankind, this group consciousness would both expand its own awareness and ensure its own survival, by orienting mankind towards a way of thinking involving both ecological concerns and the possibility of interstellar space flight.

The greatest weakness of this astounding theory is the lack of firm evidence for the existence of such an "over mind". Whilst it is true that all life on earth is interconnected to a degree (via geophysical, ecological and climatic factors), there is no firm evidence proving that the consciousness of all terrestrial life is equally closely interlinked. With the evidence for the existence of a mental unity deriving from anomalous subjective experiences, and this concept being heavily dependant on the existence of scientifically doubted phenomena such as telepathy, it is a very difficult, if not impossible proposition to either validate or disprove. Furthermore, if telepathy does not exist it is hard to see how else this "over mind" could function as a co-ordinated unity, with no other obvious means of consciousness exchange being known to biology.

C: UFOs Resulting From Otherworldly Beings

One aspect of the subject that often goes unmentioned is the apparent link between UFO activity and fairy lore. To begin with, the various supposed elfin races are loosely identifiable with the main classes of UFO occupants; goblins and pixies are comparable with the greys, the elves (or alfair) of Norse mythology are comparable with the Nordics of ufolore, and the hideous, misshapen giants of numerous fairytales are similar to the often hideous, misshapen hominids appearing in some UFO entity encounter claims. The myth of the fairy changeling, where the "fair folk" would take an earthly child, sometimes replacing him/her with an ugly, wizened "poppet", along

with tales of fairies abducting human beings share some basic and extremely compelling similarities with the hybrid breeding myths and other general aspects of UFO abduction lore.

The association of elves with fairy rings, places where the little people were supposedly seen to dance has a parallel with observations of UFOs that reportedly leave circular ground traces in their wake. As with UFOs, and UFO entities, the fairies of many cultures could reportedly appear and disappear at will, and manifested a wide variety of shapes. Some cultures explained this by claiming fairies could change into any form they desired. Elf-kin also possessed the supposed ability to fly through the air, either bodily or in aerial sailing ships and to strike people with paralysis, again another couple of general aspects they share in common with the UFO mythology. The tales of those people who reportedly ended up in the fairy realm often claim that little time appeared to pass while they resided there, but, on their return, these visitors to elf land would discover that many years had elapsed within the mortal world. The time abnormalities associated with these stories could be compared with the time abnormalities associated with both the Oz-factor and missing time, albeit the time differences in the former being considerably greater than that experienced in the latter.

From this evidence, one could conclude these tales of fairy encounters were at least inspired by encounters with an actual class of anomalous entity. The realm of the fair-folk, a land within our world but also seemingly outside of it, where magic and supernatural beings existed, and whose entrance was often known and clearly defined, is comparable to an alternative universe in which different physical laws apply, connected to our own universe by a wormhole.

Connecting mythical beings with the modern theoretical concept of alternative universes can also account for other types of anomalous entities. Contemporary semi-mythical creatures such as North America's bigfoot and the more recent Southern American chupacabras are improbable when considered to be normal inhabitants of this world, so could these also originate from another universe, deposited somehow into our own world? It is interesting to note that many of these most extreme types of anomalous entity are reportedly associated with powerful, repugnant odours or even in some instances are alleged to drip "ichor" (blood of the gods, a thin, fluid exudation from a wound or lesion). Could this be the result of cellular decay, something akin to a rapid form of skin necrosis resulting from incompatibility between the composition of the entity's universe and our own? Could something similar also account for tales of "fairy gifts" which vanish or crumble to dust shortly after being received by mortals? Stretching this reasoning to its extreme, this could also explain the lack of physical artefacts relating to UFOs, although this does not explain the dearth of convincing pictures and physical trace evidence, which such UFOs would still be quite capable of generating whilst still in possession of a viable physical form.

However, an equally convincing case can be made for a psychosocial origin for these entities. The links between UFOs and fairy lore could be accounted for by the fact that UFOs are an updated variety of otherworldly encounter; both, in actuality, generated by lucid subjective mental phenomena with shared common attributes. The changeling myth is likely to have been a pre-scientific explanation for deformed, and as a consequence, stillborn or handicapped babies (i.e. the "poppets"). The changeling myth could also have been inspired by a rare, genetic trait termed Williams

Syndrome, which gives rise to people with classical "elfin" facial features and a mind-set notably different from those unaffected by this condition. The marks commonly termed fairy rings are, in actuality, the result of a common form of fungus. However, it is possible some may have been generated by a "plasma-vortex"- like phenomenon thus consolidating the belief in an otherworldly origin for all the fairy rings in the minds of pre-scientific peoples. Likewise, it is now known that a stroke results from a blood clot or high blood pressure, and is not the consequence of a magical Elvin curse! The impact of all these various natural phenomena on a pre-scientific people must have been profound; to their minds they could only have been the work of fairies. The old superstition of referring to them as the "fair-folk" was not done out of love, but fear; these creatures were often viewed as cruel and fickle, and had to be appeased, much like Mother Nature herself. Despite this, we do have actual claimed observations of the "little people" even occurring in today's world. In this context it should be noted that many forms of clinical (and drug-based) hallucinations involve observations of small anthropomorphic figures.

The biggest problem with a consideration of the influence of elf lore is the great uncertainty over its reality status. Were these accounts simply just stories and constructed myths, or do they represent, at least in part, genuine anomalous experiences? Given that the latter is true, do we evoke the possibility of parallel universes to account for them or opt for a more down-to-earth explanation? Whatever the case, the answer to this conundrum has a considerable bearing upon certain aspects of the UFO phenomenon, given their common elements. As with all anomalous entity reports, no one can yet definitely prove that they are otherworldly manifestations with a physical reality, or merely vivid, internally generated hallucinations.

D: UFOs as Living Organisms

A small number of sightings relate to seemingly intelligent behaviour exhibited by UFOs too small or too seemingly immaterial to contain a sentient, living entity. As a consequence, it has been suggested that such UFOs are, in actuality, highly exotic energetic life forms originating either from the upper atmosphere, the sun, outer space or another universe. It is further claimed that mankind's lack of knowledge of these creatures is attributable to them being effectively invisible to the human perceptual system. Strange, irregular images appearing on infrared film has been cited as evidence of the continual presence of such anomalous entities outside of mankind's normal visual range. According to this theory, UFO sightings occur on the very rare instances when these normally imperceptible entities are somehow rendered visible to us. The actual intelligence level of these (hypothetical) creatures has been variously estimated as ranging from that of a smart animal to being equal, or greater than man's.

A more extreme version of the living organism hypothesis proposes that some UFOs are ultra terrestrial life forms, sentient energy originating from another order of reality, being either an alternate universe or even, in some versions, the electromagnetic spectrum itself. These energy forms are supposed to be capable of assuming various shapes, ranging from a ball of light to a structured domed disc, thereby accounting for the reason why the same level of intelligent control is

exhibited by both mundane and exotic forms of "true" UFO. The wide range of exotic UFO forms and UFO entity types are attributable to the phenomenon being able to transform itself into any conceivable shape. In this conception of UFOs, UFOCALs are window areas by which this sentient energy gains access to our universe from its own order of reality. This theory also explains the lack of physical proof for UFOs, the phenomenon being the immaterial consequence of an exotic electromagnetic energy process. Advocates of this concept state that this order of life form (which may be a collection of separate entities or comprise a single over mind) is actively encouraging belief in extraterrestrial visitors in an attempt to control mankind through such beliefs, for purposes known only to itself.

The two main points against this wild concept are that this theory is very hard, probably impossible, to scientifically validate, and the form of sentient energy these UFOs supposedly consist of is not (and probably could not be) scientifically defined. The precepts of this theory hinge on conspiracy and paranoia in equal measure, with every strange instance, coincidence and rumour adding speculative fuel to this nightmarish conception. As with all theories based on conspiracy and paranoia it is next to impossible to disprove, as each attempt to disprove it can be perceived as merely the ultra terrestrials playing further games with mankind, in this instance attempting to cover their tracks.

In general, the concept of UFOs as living organisms is a difficult one to either prove or disprove, being effectively based on supposed reactions by a UFO that are deemed suggestive of intelligent behaviour. Given that the determination of this supposed intelligent behaviour is largely a subjective process, the distinct possibility exists that these actions could be accounted for in other, less outlandish ways. The UFO could be a natural phenomenon actually responding to unseen geophysical influences within the sighting environment. Furthermore, any unusual action(s) displayed by a UFO would doubtlessly be viewed as the result of intelligent control, given that most witnesses probably expect such behaviour from them to begin with, due to the popular belief in their extraterrestrial origin. The various elements and varieties of the "Living Organism" theory seem more concerned with explaining the shortcomings of this very hypothesis than accounting for the diverse attributes of UFOs. As yet, there is little evidence within the annals of ufology to support this theory, with UFO reality being more easily explained in other ways.

Summary of the PPH

The term "paranormal" covers a wide range of anomalous human experiences, thus any attempt to explain some UFOs in such terms has to cover many separate possible sources of origin. The biggest negative factor hampering any paranormally based solution is that orthodox science rejects the psi abilities and manifestations that form the very bedrock upon which this hypothesis is based. However, that in itself does not invalidate efforts to assess the ufological relevance of the paranormal, for even if the processes underlying such happenings are in actuality fairly mundane, they could still give invaluable insights into certain classes of UFO events. That stated, it should be noted that some mundane explanations cited for certain paranormal phenomena do appear to fall short of being totally conclusive. Thus, there is a reasonable possibility that certain paranormal experiences do involve processes that are truly anomalous in

the context of current scientific understanding. Furthermore, our all too limited human cognition is unable to give us definite answers as to whether (for example) the collective unconscious exists, or does not exist, or if UFOs are sentient energy life forms. Thus such possibilities remain as possibilities, regardless of their apparent improbability, as viable explanation schemas for UFO incidents.

Another problem facing paranormal UFO hypotheses (even the mere occurrence of paranormal events in certain UFO experiences) is that they appear to contradict the popular conception of UFOs being extraterrestrial devices. As a result of this, such concepts and experiences tend to be shunned, even denied by a considerable number of UFO researchers. This in itself raises another question; how paranormal is the paranormal? What if, for example, telepathy was one day proved to be a genuine human ability, quantifiable by the laws of physics, or if the mechanisms for apparitions were discovered, and found to be explicable in "materialist" terms? They would effectively cease to be paranormal and join the plethora of other natural phenomena known and accepted, if not fully understood by conventional science. Hence, there is considerable danger in ruling out possibilities merely because they seem to be nonsense, or contradict popular belief in alien intervention. It is all too evident that little work has been conducted to determine how much of the UFO phenomenon may potentially involve paranormal manifestations. This is due, in the main, to the strong emphasis that many, but certainly not all, UFO researchers place upon the ETH, to the extent that other, equally important avenues of research are neglected. This imbalance in UFO research requires redress, as the hints of a link between certain paranormal phenomenon and UFOs cry out for intensive scrutiny.

CONCLUSIONS

It is all too apparent that the majority of raw sightings are explicable in terms of conventional IFO stimuli. It is also equally clear that every study of UFOs, no matter how sceptical, nearly always results in a small residue of incidents that cannot be accounted for easily in terms of misperception and subjective phenomena. It is to this residue of "true" UFOs that ufology must turn its gaze. Unfortunately, it is when attempting to determine the nature of "true" UFOs that ufology encounters some of its greatest conceptual difficulties. A considerable number of these unexplained cases are explicable in terms of a high-energy plasma phenomenon, having attributes consistent with such an origin. However, although evidence for the physical reality for such a phenomenon exists, and with many potentially viable sources of generation being available, this concept has yet to be conclusively accepted and vindicated. Other "true" UFO events relate to UFOs that appear to be structured and artificial in nature, but the majority of such events suffer from a lack of supporting proof to fully validate their objective existence. Although some evidence suggests that such UFOs may physically exist, it is scant and often open to convincing alternative, prosaic explanations. These types of sightings are few in number and have yielded little or nothing in the way of physical evidence, this being very suggestive in itself.

As the above discussion of the various UFO theories shows all too well, there are many potential sources that could initiate "true" UFO events, mundanes and exotics alike. Some hypotheses appear to be more viable than others, but the best all have at least a few aspects that make them worthy of further examination and consideration.

Many of these theories (especially the more exotic ones) currently possess "drawback" factors that result in them being as equally conceptually flawed as the next. However, this situation could well change with the advancement of human knowledge, which may resolve these conceptual problems, even remove a theory from consideration or uncover new possibilities. However, the extent of the above examination of the various UFO hypotheses itself indicates another problem facing ufology now and in the future; although many theories can explain some aspects of UFOs, they cannot, individually, account for all the reported evidence.

This in itself leads to the most important question pertaining to the UFO phenomenon; does it involve a "core" phenomenon that has only one source of origin, or an intermingling of phenomena of widely differing origins? It should always be borne in mind that the only thing one "true" UFO has in common with the next is that it is a "true" UFO, which itself is merely a label of convenience, an admission of our gross ignorance. The fact that these reports cannot be easily explained says nothing about their source of origin. It does not guarantee that the phenomenon seen in one sighting is the same as that observed in another. IFO reports are a prime example of this; although all IFOs relate to explained UFO occurrences, there are estimated to be around 150 distinct causes for them, and around half a dozen commonly recurring types.

Therefore it is likely that there is no single UFO phenomenon, but many UFO phenomena, composed of diverse manifestations of various origins. The UFO phenomenon could be viewed as one involving an escalating level of strangeness. IFOs comprise the first level. Exotic plasma and mirage effects comprise the next. Finally, right at top are the events with extremely exotic origins, such as extraterrestrial devices, various paranormal effects and anything else not forbidden by the laws of reality. Ufology must therefore address the question of the true extent of the UFO phenomenon; does it end with IFOs, plasma-forms or alien visitors?

Unfortunately, there is a strong inclination within ufology to believe in a single "true" UFO phenomenon with a singular origin, which is often unquestioningly deemed to be extraterrestrial. This perspective can take several forms. The first accepts concepts such as earthlights but effectively relegates them to the status of IFOs. The second, more hard-line attitude rejects the possibility of earthlights and other similar novel natural causes, and is equally hostile towards the possibility of paranormal or other similarly exotic origins for "true" UFOs. Furthermore, a deep suspicion is exhibited towards any attempt to account for all but the most obvious IFO reports in rational terms, with any such efforts attempted by more open-minded ufologists being vehemently dismissed as debunking propaganda or "psycho-social claptrap". Equally, there are researchers who take the opposite approach. They are more open to the view that true UFOs may not just involve alien visitors; some can even conceive of a UFO reality that is totally based on novel forms of unusual natural phenomena such as earthlights.

It is clear that dogma and blind belief remain the greatest obstacles to our true understanding of the UFO enigma. Only when the chains of these outdated conceptual shibboleths are cast aside can a true comprehension of the UFO phenomenon be attained. Ufology is finally reaching a stage where a reasonable understanding of its subject matter could be realistically acquired. The nature of the UFO phenomenon is



now much clearer than it was in 1947, with many potential sources of origin having been identified. However, much work is still required to determine the true extent and parameters of the UFO. This will be achieved both through the documentation of new reports and closer examination of the UFO incidents already on record. As with most scientific research, a fuller understanding of UFOs will not happen as the result of a single breakthrough, or through astounding "official" revelations. The UFO phenomenon appears too diverse in nature to be effectively cut down with a single conceptual blow (although a sudden breakthrough could well occur in relation to one particular source of "true" UFO events). The quest for further and full understanding of the UFO problem will not prove to be an easy one, and remains the greatest challenge facing ufology, both today and for the foreseeable future.

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