

Hypotheses About the Origin of UFOs

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1. Introduction

Ever since the first appearance in modern times of "flying saucers" in the skies above Mt. Rainier the question of their origin has been a subject of debate for the general public and UFO researchers alike. The strange maneuvers performed by UFOs in the air at high speeds soon made it evident that a conventional explanation would not do justice to the phenomenon. Almost from the beginning doubts were felt by some about a terrestrial origin of the craft. Others considered the possibility of their being secret weapons, since technical developments for military purposes tend to be ahead of civilian efforts. But in this case the gap between flight characteristics of UFOs and commercial craft performance was - and still is - so great that it seemed impossible to have bridged it.

As time went on the number of UFO observations increased a great deal and many new details became known. Today, the spectrum of observations covers a wide variety of phenomena like lights in the sky, daylight disks, landings, UFO occupants, depressions in the ground, scorched vegetation and other landing marks, strong magnetic fields in the vicinity of UFOs and, more recently, hundreds of thoroughly investigated abductions.

One might think that the complexity of the phenomenon, which so obviously violates established scientific concepts, would have discouraged authors from trying to develop theories explaining where UFOs come from. Actually, though, the opposite is true. There is no shortage whatever of ideas attempting to explain the origin of UFOs. Several of them will be presented below. Of necessity, a selection had to be made out of a large number of hypotheses that have been proposed over the years. The ones selected in this article are based on what seem to be reasonable assumptions. A fair amount of thought and effort has been invested in each one of them.

Despite their number, no single theory has won general acceptance. All hypotheses either raise a number of new questions, or else involve postulates which are not and often cannot be proven. UFOs clearly are on a scientific and technological level far above our own. Since their origin and method of getting here are no doubt related in some measure to their technology it is not surprising that we have difficulty finding satisfactory answers to the question of where they come from.

2. The Extraterrestrial Hypothesis

Of all theories, the extraterrestrial hypothesis (ETH) enjoys the greatest popularity (Swords 1989, Prytz 1978). It states that UFOs are visitors reaching us by means of spaceships from other planets belonging to far distant sun-like stars somewhere in our Milky Way system or in another galaxy. The ETH is attractive for a number of reasons:

Computer simulations indicate that planetary systems condensing out of primordial gas clouds surrounding central sun-like stars often show the same distribution of sizes and distances as the planets of our own solar system. For this reason earth-like planets revolving about sun-like stars may be relatively abundant in most galaxies. Some planets of other

stars have recently been discovered, and though they are too large, too gaseous, and too hot to support life, they do raise hopes of one day detecting planets more closely resembling our earth. If it is assumed that life inevitably develops on planets offering conditions like those existing on earth some 4 billion years ago, then most galaxies should be populated by civilizations many of which will be more advanced than our own.

Today there is little doubt in scientific circles that extraterrestrial societies exist (Ash pole 1989, Swords 1989). The large-scale SETI experiment (Search for Extraterrestrial Intelligence) is designed to catch some bits of planetary or interstellar conversation (Morrison, Billingham & Wolf 1977). The ETH, therefore, has the advantage of having some of its basic tenets conform to mainstream science.

The drawback of the ETH is its inability to explain how UFOs manage to travel the immense interstellar distances separating their home planets from ours, and to do so in large numbers.

The limiting factor on interstellar travel is not so much the speed of light as the interstellar gas. Long before a UFO approaches light velocity, bombardment by interstellar hydrogen and other atoms or even molecules will raise its temperature to the melting point. In addition, friction with the interstellar gas will brake its speed just as the atmosphere brakes re-entrant satellites. On the other hand, travel at velocities much below that of light is too slow, requiring many years for traversing average interplanetary distances. The relativistic time dilatation will shorten the time of flight as felt by UFO occupants, but it, unfortunately, becomes effective only close to the speed of light. At that speed the UFO is likely to be heated to incandescence, quite apart from the enormous amount of energy required for accelerating to relativistic velocities.

There seem to be too many obstacles in the way of traversing interstellar distances within a reasonable time. Yet the large number of observed UFOs clearly points to an easy mode of travel, involving little effort and no great loss of time. One way of accomplishing this would be to travel in a non-physical state. This is the topic of Section 9. All in all, comfortable interstellar travel seems impossible within the framework of present-day science and technology.

3. Psychological and Paranormal Theories

While the ETH currently is the champion among UFO theories, an entirely different interpretation of the same phenomenon is a close second. This refers to the fact that the human observer always is the intermediary between the appearance of a UFO and the information about the observation received by outsiders. The human psyche is a strange and wonderful thing, and it is entirely possible that UFO sightings in reality reflect the imagination of unsettled or confused minds. This has led to the proposal of psychological or paranormal theories as alternative explanations for the UFO phenomenon (M. Moravec 1987, Evans 1984).

Aberrations of the human mind range over a wide spectrum of symptoms. The most common reaction to a UFO sighting is fear and sometimes curiosity. Fear, anxiety, stress, and other strong emotions may impair a witness's judgment. If the sighting occurred long ago, the witness may add details that did not actually occur at the time of the encounter.

UFO witnesses may be assumed to constitute a representative cross-section of the population. Consequently, the great majority of them are mentally healthy and well balanced, and only a small fraction may not be. One of the many possible psychic disturbances is paranoid

schizophrenia, leading to delusions, hallucinations, bizarre associations, and other symptoms.

Mental disturbances can take many forms: Persons suffering from altered states of consciousness may hallucinate anything, from seeing flashes of light to experiencing abductions. Under the influence of fugues persons may wander about aimlessly in a state of confusion. In severe cases some individuals may even settle in far distant places, where they may lead a normal life without realizing that they are far from home. Many people hear sounds and see images in a semiconscious state between wakefulness and sleep. Autohypnosis may lead to the experience of elaborate visions of UFOs where none exist. In a psychopathological state a strong belief in UFOs usually enhances the probability of perceiving one.

These and other purely psychological processes may simulate the appearance of UFOs and their occupants. However, since most witnesses are perfectly normal and sightings in general are witnessed by more than one person (by 2.4 witnesses on the average), what they observe cannot always be due to an unbalanced imagination. There is no objection to the hypothesis that some UFOs are purely psychological phenomena, but there are objections to the contention that all UFOs have a psychological origin. The strongest argument against this hypothesis is presented by the frequent physical traces left behind by UFOs and the scars exhibited by abductees.

A somewhat different approach to the problem is the suggestion that UFOs are fundamentally paranormal phenomena, seen mostly by psychic persons. Some UFO characteristics are indeed reminiscent of paranormal occurrences: UFOs can change shape or materialize and dematerialize, aliens float through closed windows and doors, sometimes carrying an unfortunate abductee with them. They can effect sudden healings, communicate *via* telepathy, and perform other inexplicable feats. A paranormal component no doubt is present in many encounters with UFOs, but since we are as unfamiliar with the origin of paranormal phenomena as we are with the origin of UFOs, the suggestion that the latter are an inherently paranormal phenomenon is equivalent to saying that we do not know what UFOs are and where they come from. What seems to be more likely is the assumption that paranormal components play an important role in the wide spectrum of UFO appearances.

4. Psychic Projections

Jerome Clark and Loren Coleman (1975) based their theory of psychic projections on the concept of the collective subconscious introduced by C.G. Jung. While the latter thought of it as an all-pervading immaterial quantity, the two authors went one step further and assumed the psychic energy stored in the collective subconscious to be capable of projecting physical structures into our world. In the past these took the form of fairies, elves, poltergeists, etc., but in modern times they have become UFOs and UFO occupants. This makes UFOs a terrestrial phenomenon and would explain the large number of observations presenting such an obstacle to a belief in the ETH (Clark 1990).

Just like several of the preceding and following theories, the psychic projection hypothesis can neither be proven nor disproven. However, it seems strange that psychic projections should be so numerous and that they seem to be restricted to UFOs. Why are there no psychic projections of cars, television sets, computers, etc., which are much more prominent in everyone's subconscious mind? Moreover, UFOs display an intelligent behavior. Psychic projections may be expected to behave in a much more haphazard manner, just like poltergeists, which are acting in a random way and without any discernible logic (Moser 1950).

What triggers the projection in the first place? Most witnesses are completely taken by surprise by a sighting, while UFO researchers, who think a great deal about UFOs and would love to see one, usually don't. If UFOs were psychic projections, would it not be much more likely that UFOs are sighted by those who hope most fervently to see one? Thus, possible examples of psychic projections are the much photographed appearances of the Virgin Mary in the 60's over the Coptic church of Zeitun near Cairo, and the luminous phenomena seen on the occasion of religious festivals in Wales in 1905. These occurrences were probably triggered by the faithful expectation of witnesses.

The problems mentioned above are not solved by the theory. Nevertheless, it is an interesting attempt to bring into accord the paradoxical behavior of UFOs, the physical traces, and the large number of observations.

5. The Tectonic Strain Theory (TST)

Many tectonic formations in the lithosphere under the continents are known to be under conditions of strain due to displacements in the earth's mantle, to the slow shrinking of the earth, and to other causes. Occasionally, the strain in a given area is relieved by an earthquake, after which it builds up again over a period of years.

Michael Persinger (1990) had the idea of investigating correlations between UFO observations and anomalous luminous phenomena (ALP) on the one hand, and natural processes known to release large amounts of energy such as tornados, earthquakes, etc., on the other. He found that observations of UFOs and ALP showed moderate correlations with the energy liberated in earthquakes, provided the latter occurred months to years earlier or later in a location up to hundreds of kilometers away from the earthquake epicenter. UFO data were taken from Saunders' UFOCAT (Saunders 1975, Merritt 1980) and other sources.

These long-distance, time-shifted correlations could best be explained by associating anomalous lights and UFOs with tectonic strain underneath the observation sites. The reason is that long before the occurrence of an earthquake the energy later to be released is stored in strained rock formations surrounding the epicenter and extending out to distances of many kilometers. Strong strains exist over areas measuring 20-50 km in radius. Beyond this distance the strain becomes weaker.

The basic mechanism translating tectonic strain into a glowing mass of light in air is not clearly understood, but is thought to be related to strain-induced electric fields. These may be due to piezoelectricity, microfissures in the rocks, or mechanical friction between rock layers. If he is far away from an ALP the observer merely sees a light in the sky, but closer up he notes some structure and imagines he sees a UFO. Still closer the strong radiation field surrounding the light begins to stimulate the electrically sensitive temporal lobe of the observer, who then imagines seeing all the phenomena associated with UFOs such as landings, entities, abductions, and even paranormal events unrelated to UFOs. As a clinical physiologist Persinger is well qualified to discuss all aspects of the aberrant human mind.

In summary, the TST explains all manifestations of UFOs as pure imaginations, triggered by the exposure to strong fields emanating from balls of light floating in air, which in turn are induced by electric fields originating in deep rock layers and caused by tectonic strain.

Despite vigorous promotion of the theory in some 30 publications by Persinger and collaborators, the TST has had rough sailing. This may be due to the fact that a single-cause theory

drawing sweeping conclusions about a phenomenon as complex and diversified as UFOs does not sound credible. However, there are more substantial objections to the theory.

UFOCAT is known to list raw data, and it is not known how many IFOs are contained in it. Hence, the TST is based on correlations between a mixture of IFOs and UFOs, and a simple mathematical formula relating energy release in earthquakes to their strength on the Richter scale. There are so many intermediate steps between these two sets of data, including some that are not well understood, that the reliability of the correlations is questionable, especially since correlations should never be used to prove a cause-and-effect relation. Another question is why UFOs are not observed closer to earthquake epicenters, where strain in rock beds is much stronger than far away (Rutkowski 1990).

A serious drawback is the unclear nature of the fields alleged to produce the luminous phenomena and the destabilizing influence of the latter on the human mind. The 3 possible tectonic origins of possible fields mentioned above all cause electric charges to appear on the surfaces of crystalline rock inclusions, giving rise to electric fields. However, since the rocks are electrically neutral to begin with, positive and negative charges always add up to zero on the average, resulting in the field strength going to zero within a relatively short distance. Since all this occurs at depths of several kilometers the effects are expected to be hardly discernible on the surface. Furthermore, any tectonic fields that may appear would be added to the usual atmospheric fields, which can become quite strong before thunderstorms. Since electric fields produced by tectonic strain, if they exist, have been with us since life began, we should by now be adapted to them and any exposure to such fields should leave our minds entirely unaffected. During thunderstorms we are not experiencing any alteration of normal brain functions either.

It is not known how electrostatic fields emerging from the ground manage to create luminous volumes in air. **Plasmas** are very difficult to produce and have lifetimes on the order of microseconds. Moreover, plasmas emit only light and heat. They are not surrounded by strong, long-range electric fields for the simple reason that they, *too*, are almost electrically neutral when viewed from the outside. This makes it very difficult to imagine how anomalous lights can have any influence on our thought processes. Moreover, cars are excellent Faraday cages into which electric fields cannot penetrate. Yet a large number of UFO observations and even abductions have been reported by car passengers. Even if we accept the idea that exterior electric fields are able to trigger hallucinatory images in a person's mind, it is difficult to believe that a random field can lead to an ordered, coherent train of thoughts during an abduction lasting for about an hour, and it is even harder to believe that it leads to exactly the same conceptual ideas in thousands of abductees worldwide, down to the last details, some of which have not even been published. The same reservations can, of course, be made relative to the psychological hypothesis of Section 3.

It is also hard to accept that fields alone should be able to produce depressions of landing pads in the ground, large scorched areas underneath landed UFOs, multiple abductions, or anomalous scar tissue and other marks on abductees. Finally, hundreds of interviews conducted by Randle/Schmitt (1991') and Friedman/Berliner (1992) in connection with the Roswell Incident make it seem very likely that a UFO crashed near Corona, NM, on July 4, 1947 (Randle & Schmitt 1994) and is now in possession of the US Air Force. A single such case, if true, is sufficient to demonstrate that the UFO phenomenon has a nuts-and-bolts component.

It is, of course, always easier to criticize than to invent a new, coherent theory. All of Persinger's correlation analyses are based on data available to everyone. The natural thing to do, if the validity of his correlations is doubted, is to perform an independent analysis involving

more reliable data and carried out by someone not "correlated" with Persinger. The ufological community so far has failed to do so.

6. The Earth Light Hypothesis

This theory, suggested by Paul Devereux (1989), is often lumped together with Persinger's Tectonic Strain Theory, although it definitely has a right of existence of its own. Its claims are far more modest than those of the TST and refer essentially to one phenomenon only: The appearance of luminous globules in air, which Devereux calls earth lights.

The theory is based on a large number of contemporary and historical accounts of terrain related lights, observed in certain geographical areas in Britain and elsewhere in the world (Strand 1985, Brueske 1988). Some of these lights, appearing time and again in the same locality, have been known for generations, and a few have even found their way into mythology. Lights emerging from the ground have often been shown to mark the presence of mineral deposits or of old mines.

Earth lights range from a few centimeters to several meters in diameter, the most frequent size being about half a meter. Most balls of light are white or orange in color, white lights often having a reddish core. Lights emerging from the ground or from old mine shafts tend to go out quickly or to hover for a while. Only few rise to great heights. On touching the ground they usually extinguish. Many of them are seen over bodies of water, power lines, or cave entrances. Reports also indicate that some lights display what may be termed an "intelligent" behavior, seemingly responding to an observer's thoughts. If this is true, it would indicate the action of a field whose nature is not simply electromagnetic.

Devereux feels that the TST is a plausible explanation for at least some of the observed lights, since they typically correlate with tectonic faults, some types of rock, mines, quarries, etc. But he also feels that there may be other, less evident causes as well.

The Earth Light hypothesis is not so much a theory as a carefully researched collection of a great many observations. While some of these may be misinterpretations, the majority seems to be due to manifestations of an unknown nature. Most UFOs have been and still are being seen at night as lights in the sky, and many of them display the characteristics described by Devereux. In contrast to the TST, it is not Devereux's intention to explain more substantial manifestations of UFOs like landings, depressions in the soil, aliens, or abductions.

7. Parallel Universes

Science fiction writers were the first to introduce this hypothesis in their stories long before the advent of UFOs. The concept seems to have stimulated the imagination of readers so that it was used to explain the origin of UFOs when the latter made their appearance. Briefly, the theory contends that UFOs are not visitors from planets in our own universe but from another universe existing in parallel to ours.

Before passing judgment on the merits of this hypothesis it would be useful to define just what precisely a "parallel" universe is. To illustrate this, imagine the world to be 2-dimensional. A very large sheet of paper is an example of such a 2-dimensional "universe". Let us further assume that we are 2-dimensional beings living on the sheet. Being 2-dimensional means that our senses are unable to register anything occurring in the third dimension. A

parallel universe then would be a second sheet of paper, parallel to the first one and separated from it by some distance in the vertical direction. This "parallel universe" fulfills two conditions: It is displaced in a direction perpendicular to the two dimensions of the sheets, and the 2-dimensional inhabitants of the first sheet have no way of realizing the existence of the second sheet. However, if the 2-dimensional beings on the second sheet are very intelligent, they might surmise the presence of a third dimension, and ultimately they might even devise a vehicle able to transport them down to the first sheet. There they would be greeted as UFOs coming from a parallel universe!

Fortunately, we are 3-dimensional, as life would be dull in only two dimensions, but from a 3-dimensional point of view things become more complicated. This time a parallel universe has to be separated from ours by a coordinate perpendicular to the 3 familiar dimensions, and again we must be unaware of its existence as coordinate. One possibility would be a genuine 4th dimension. But on what basis does our brain pick only 3 out of 4 equivalent dimensions? Furthermore, it can be shown that there cannot exist more than 3 genuine macroscopic spatial dimensions measurable with yardsticks. Four and more spatial dimensions would lead to planetary and electronic orbits in the form of logarithmic spirals and not to the experimentally established elliptical orbits.

Another possibility would be time which, according to relativity, is the 4th dimension perpendicular to the others. It is not a spatial dimension, since it cannot be measured with yardsticks. At present we are unable to travel either into the past or into the future, and so time would be a suitable candidate for a dimension separating us from a parallel universe. Time travel will be discussed in Section 10.

Finally, one could postulate the existence of a 5th dimension and of still higher ones, all of which would not be genuine. To our senses they would not appear as dimensions at all but as something altogether different, just as time is conceived by us as something different from length, width, or height. In Heim's higher dimensional unified field theory (Heim 1989, 1984; Beck & v. Ludwiger 1993) for example, the 5th dimension measures the degree of a structure's organization, and a parallel universe could be separated from us by a large distance along that coordinate. Unfortunately, all material objects are relatively simply organized and are therefore located low down on the organizational scale. For this reason parallel universes high up on the organizational coordinate cannot contain material objects like UFOs.

Evidently, the theory of a parallel universe as origin of UFOs is beset by difficulties. In any case one may wonder why it should be easier to reach us from a parallel universe than from our own, assuming that the two are structured on essentially similar lines.

8. The Interdimensional Theory

This interesting hypothesis was proposed by Jacques Vallee (1988) in his book "Dimensions". For many centuries there have been reports of fairies, elves, fawns, nymphs, ghosts, etc., whose conduct was strange, but not necessarily in contradiction to the naive level of belief characteristic of the times. In our sophisticated society these beliefs are no longer popular and, as if realizing this, the phenomenon has changed first to airships and now to UFOs. And indeed, some UFOs are reported to behave in very strange fashion. Some of them appear or vanish suddenly, others shrink or grow larger, and occasionally they divide into two or more craft, or several of them merge into one. These certainly are not the characteristics of a nuts-and-bolts device. In addition, Vallee arrives at an exceedingly large number of UFO visits by extrapolating the number of cases in his files to observations

worldwide. He contends that these facts, plus the many hundreds of abductions that seem to make no sense, argue against the assumption of UFOs being visitors from distant planets.

In order to explain the bizarre events Vallee invokes the existence of higher dimensions beyond those of space and time. This higher dimensional universe (hyperspace) consists not of time-dependent physical objects but as a series of informational events, whose progress suggests the passage of time. Our minds are able to retrieve the information as it unfolds in hyperspace, and this retrieved information manifests itself to our minds in the form of physical objects and events taking place all around us. UFOs are able to manipulate information so that they may appear to us either as solid flying machines or as wondrous devices behaving in ghost-like fashion reminiscent of stories told about the Gentry.

In such a theory UFOs, residing in higher dimensions, need not come from distant planets, although there is no rule against it. It is much more probable that they materialize from a terrestrial environment, since the higher dimensions are all around us. They share this feature with the Gentry and with paranormal events, to which Vallee feels they are related.

The theory has earned its author fierce criticism from a number of researchers, who feel that UFOs are robust material objects able to travel physically through space, and that abductions are real occurrences and not paranormal ones.

Actually, though, the theory is a remarkable, intuitive approach to a problem whose solution cannot be fitted into today's mainstream physical science. Unfortunately, Vallee's presentation is somewhat vague and lacking precision, so that the reader has difficulty forming a clear picture in his mind. There is no mathematical theory to back it up as would be necessary in order to base the new ideas upon a solid foundation. Vallee's theory contains some elements also present in Heim's mathematical higher dimensional theory discussed in Section 9. In its present form Vallee's hypothesis should be regarded as a worth-while attempt to advance a unifying explanation for phenomena as seemingly divergent as fairies and UFOs.

9. The Projector Theory

The projector theory (v. Ludwiger 1979, 1984; Beck & v. Ludwiger 1993), developed by one of the authors (v.L.) is based on the second, so-called transcendental part of Heim's theory (Heim 1980, 1990), dealing with events in dimensions beyond the 4th (time). These higher dimensions are known as transdimensions. The 5th coordinate, as mentioned in Section 7, has an organizational or informational character. This permits a qualitative evaluation of the significance of an information or of a structure in addition to its quantitative description in space and time. A highly organized object, in particular a living being containing information of high significance, occupies a fairly high level on the organizational scale relative to nonliving matter. The highest level among all material structures is occupied by man. Only immaterial objects can exist on still higher planes. Heim shows that information can be exchanged between higher and lower levels by way of gravitational waves. Impinging on a material object, gravitational waves do not increase either the temperature or the degree of disorder inherent in the structure (this is called an "entropy increase"). Instead, they withdraw heat from the object, leading to an increase in the degree of order ("entropy decrease"). If the information carried by them is of the right type, the waves can modify the probability of existence of an object in a specified location, so that the object can either shift its position or dematerialize and rematerialize.

A theory involving more than the usual 4 dimensions requires a considerable revision of physics. The higher dimensions enter into the mathematical description of all material structures, in particular into those of elementary particles, in this sense all objects can be said to extend into the transdimensions.

According to the projector theory, the first step a UFO wishing to land on a foreign planet has to take is to generate an artificial pattern in the transdimensions of a planetary surface by means of an appropriate modulation of gravitational waves. This pattern should more or less match the natural pattern formed by the extensions into the transdimensions of the actual planetary surface: on which the UFO intends to land. The two similar patterns will then generate a structural resonance bridge across which information can travel to and from between Planets. Transdimensions are superimposed upon our 3-dimensional world because they are not spatial dimensions, so that there is no true distance between two points in higher dimensions. The concept of "distance" between two points in the transdimensions denotes the difference in organization of the objects located at those points, not their physical separation. Two similar planets may be far apart even while their transdimensional patterns are superimposed upon each other.

Next, the UFO dematerializes by generating gravity waves which, upon passage through the craft and its crew, are modulated with full information about their structural details. In this form the information can cross the resonance bridge in an instant and without having to travel through ordinary space. Near the surface of the target planet the UFO rematerializes via gravity waves by an inversion of the process that allowed to dematerialize.

A more detailed account of the projector theory is contained in the cited literature. There is no proof of its correctness, but its utilization of quite a number of concepts appearing in Heim's theory (which is not UFO-related) raises it a little above pure speculation, it accounts for the sudden appearance and disappearance of UFOs and for their seemingly effortless way of traversing interstellar distances. The technology needed for its realization is, of course, completely unknown, but a technologically far advanced society may be expected to have developed it.

10. Time Travel

Another theory whose origin goes back to science-fiction days is that of time travel {Parker 1991}. It contends that in a few hundreds or thousands of years mankind will have learned to build time machines able to carry it back into the past. Since the mechanism of natural selection will long ago have ceased to be operative, the genetic stock will have degenerated, leaving the earth's inhabitants in a physical state endangering their survival (Johnson 1993, Davenport 1992). According to the time travel theory, UFOs are visitors from our own future carrying out the task of rejuvenating their genetic stock by interbreeding with humans. This seems to be borne out by the fact that the grey entities so prominent in abductions, have fragile but humanoid bodies. In order to minimize the effect any manipulation of their past is bound to have on their own future environment they endeavor to have as little contact with us as possible. This restraint of UFO occupants to communicate with us has indeed been a puzzle for a long time.

A great deal of UFO-unrelated research on the possibility of time travel has been carried out, since it is a problem of particular interest both in relativity theory and quantum mechanics (H. Moravec 1993). It turns out that the solutions either depend on impractical assumptions, or else rely on physical processes not likely to be realized in nature,

Gödel, for example, demonstrated that a universe rotating fast enough would distort space and time sufficiently to allow reaching one's destination before departing. However, the universe

shows no sign of rotating. Similarly, Kerr and Newman showed that a very fast spinning black hole having the mass of a whole galaxy might make a spaceship return before it started. Wormholes have been suggested as possible time machines, but their properties are not known well enough to make reliable predictions. In any case, it is not likely that UFOs use such clumsy mechanisms for time travel.

Several possibilities of sending signals into the past have been explored by means of quantum mechanics. Any signal sent back in time will oscillate back and forth between transmitter and receiver, continuously moderating both of them until equilibrium is reached, which is what we observe. This equilibrium may adjust itself in such a manner that it precludes information reaching the past, but an appropriate manipulation of the signal might circumvent this restriction. This, of course, is speculation and in any case very far from physical time travel.

A remarkable and illuminating series of experiments has been reported by Schmidt (1987, 1993). It is well known that psychically gifted persons are able to influence the random sequence of "heads" and "tails" of a flipped coin so that one of the two is thrown more often than the other. In the experiments the throws were simulated by a computer, and results were stored on diskettes as well as in the computer memory. In addition, they were printed out and immediately inserted into envelopes and sealed before anyone had a chance to look at them.

Months later a test person concentrated on retroactively influencing the results. The sealed envelopes were then opened and as a check the stored information was printed out as well. Results plainly showed the randomness of the data to have indeed been influenced in the direction aimed at by the test person. Schmidt does not interpret this result as a modification of the past, but rather as a precognition of the past for events due to occur in the future. But the experiment may equally well be interpreted as indicating a genuine possibility of influencing the past, *provided this does not lead to even the slightest modification of the future!* Not even the knowledge that a change will occur is allowed.

There exists some evidence in favor of time travel. Thus, Corporal Armando Valdes in Chile grew a 5-day-beard during an absence of only 20 minutes (Huneus 1987). This may indicate that for him time progressed much faster temporarily than it did on earth, implying that he traveled into the future. When heading back into the present he must have passed through the same time intervals in the reverse direction, so that for 5 days he led a double existence. On his way back into the present he must, in principle, have been able to observe himself on his way into the future and vice versa.

Other evidence for the reality of time travel are hundreds of cases in which witnesses observed UFO occupants, built like perfectly normal persons, speaking terrestrial languages (Bowen 1965, Benitez 1978, Heiden 1982, Keel 1970, Lorenzen 1967 p. 109 and 123, Vallee 1990), wearing glasses (Randle 1989), eating terrestrial vegetable food (Vallee 1969), and sometimes explicitly identifying themselves as visitors from our future world (Keel 1970 p. 199-200, Fowler 1990). Occasionally, they even ask what year we have (Lorenzen 1967 p. 126, Keel 1970 p. 126 and 184, Keel 1975). Unfortunately, utterances by UFO occupants are notoriously unreliable and should be regarded with extreme caution. Instead of seeing people from our own future, witnesses are much more likely to have seen perfectly normal terrestrial individuals cooperating with alien UFO occupants or imitating them.

Time travelers age when they move into the future and get younger when they travel into the past. For this reason an object cannot reach any epoch in which it did not exist, or in which it has ceased to exist. This limits time travel of persons to a relatively narrow time range, and a population which lives, say 1000 years farther ahead in the future will in all probability be

unable to reach us. Furthermore, the rapid aging or rejuvenation experienced in time travel may be very harmful to the living organism.

Anthropologists anticipate the looks of man in the distant future to be similar to that of the grey entities (Miller 1981). Just like the human skull resembles that of a chimpanzee embryo, so the head of the future human may look like that of present-day embryos. The large head of the greys could never pass through their narrow pelvis, so that birth must take place in an incubator, bearing out the reports by abductees of embryos observed in transparent vessels (Jacobs 1992). This has led Michael Swords (1985) to assume that the future embryonic development in an incubator will free the genetic potential from the restriction of a narrow birth channel. Thus, oxygen may be supplied to the embryo during a longer period of time, enabling it to develop a much larger skull. At the same time sex organs will shrivel, as they are no longer needed because reproduction will be accomplished by cloning. All this may indicate that the grey entities are visitors from our own future.

The computer scientist H. Moravec believes that a few decades from now computers wired like neuron networks and built into human robots will have an intelligence far exceeding our own. He even feels that they will develop a consciousness and will themselves steadily and independently improve their progeny (H. Moravec 1988). If this somewhat risky forecast is true, the small grey companions of human UFO occupants might be the predicted robots. However, reading the numerous abduction accounts one does not get the impression of the grey entities being particularly intelligent.

On the other hand, the morphology of living beings probably has developed along similar lines in the entire universe. For this reason the assumption that the greys belong to a far advanced civilization is as applicable to the present inhabitants of a distant, older planet, as it is to the future inhabitants of our own.

An additional argument against the time travel hypothesis is that the weak body of the grey visitors, carrying a disproportionately large head, is poorly adapted to life on earth with its strong gravitation. Furthermore, abductees have gained the impression that the greys need neither food nor air and possess no reproductive organs, so that they might be biological robots. It is indeed improbable that mankind will voluntarily maneuver itself into an asexual condition, and that it will also dispense with eating and drinking. Present-day development rather points in the opposite direction!

We are not even certain that the future exists in a concrete form. After all, we may be at the forefront of time already. The future may have a potential existence, but not a real one. Our sense of time is generated by impulses in our consciousness, which is faced with a multitude of potential events out of which it chooses a certain one and transforms it into reality.

One of the main arguments against travel into the past is its violation of causality. If a person travels back in time and shoots his own grandfather before the latter has had any children, he could not have been born and hence could not have traveled back to kill his grandfather. But if his grandfather was not shot, then his grandson was born and could shoot him, etc. etc. Clearly, this causal loop never ends. Nevertheless, Deutsch (1991) has shown that general relativity permits time travel avoiding this paradox: As soon as the past is modified by, say, shooting a person, a new universe branches off. The old one continues to exist unchanged, while the new one contains the modification and unfolds accordingly. The traveler who caused the modification is confined to the new universe and will never be able to return to the exact future from which he came. This theoretical solution does not violate causality, but no one knows if nature allows multiple universes to exist.

If UFO occupants really wanted to prevent altering their own world as a result of changing ours, then it is much too late already. The fact that thousands of articles and tens of thousands of book copies have been printed about the topic, the existence of large UFO societies in many parts of the world, UFO crashes and their possible recovery, and abductions that have traumatized an unknown but large number of abductees have already affected our generation and will continue to do so in many generations to follow.

On the other hand, all over the world witnesses who have had sightings of special interest, or who have taken pictures and movies or are in possession of metal fragments have been visited immediately afterwards by strangely dressed men, usually wearing black. Although no one knew of the event except the witnesses themselves, the "men in black" threatened them and insisted on the evidence being handed over to them. In every case they demanded that the witnesses talk to no one about their sightings. Thoroughly investigated cases have been reported in 1958 from El Salvador (Vallee 1969 p. 273), in 1965 from Texas (Lorenzen 1969), and in 1966 from Mexico (Clark 1979).

Nevertheless, these attempts at suppressing information, some of which have not even been successful, since otherwise we would not know about them, are not even remotely sufficient to eliminate the impressions left since 1947 in the minds of hundreds of millions of individuals as a result of UFO appearances. The fact that UFO crews avoid contact with us may be due to their desire to prevent a cultural shock resulting from a clash between their own advanced culture and ours, as has happened repeatedly on earth.

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