



UNDERSTANDING

Humans, Extraterrestrials & the Awakening of the Planetary Mind

For all of the potentially existing life forms throughout the universe we are the extraterrestrials.

This book will change the way you think about yourself and the world!

A review of recent scientific discoveries from multi-disciplined research that gives us a new understanding of ourselves, our world, our universe and the extraterrestrials that appear to interrelate with us.

by
Gary Opti

Understanding Humans and Extraterrestrials

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Dedication

This book is dedicated to my wife Carmel, my children Palila, Savannah and Lowanna, my late parents Kaye and Leon, my brother John, and to all my relatives and friends who have enriched my life and made my existence possible.

Acknowledgements

This book could not have been written without the detailed work of the many researchers and the publication of the many books, magazines and articles from which my information is derived. I also wish to acknowledge the wonderful work of the uncountable number of people in every field of endeavor that have contributed to my consciousness and survival. This work is the result of approximately thirteen billion years of universal expansion and four billion six hundred thousand years of Sun, Moon and Earth harmony. The co-operation of endless numbers of individual micro and macro organisms over that time was essential to produce this work. It lies embedded within a space-time continuum of universal consciousness.

“Good science is always open-minded, and the history of science is one of surprises and overturnings. Science is nothing but careful thinking, and careful thinking encouraging an appreciation of the complexity of the world. The complexity encourages us to maintain several possibilities at once. In a single lifetime, we may have no way to remove the ambiguities from these possibilities. A scientist may tend to favour one story over the others, but will always be careful to concede uncertainty and maintain a willingness to change the balance with new, incoming information” (David Eagleman, neuroscientist at Baylor College of Medicine, Houston, Texas, Why I am a ‘possibilian’, *New Scientist*, 25/09/10.)

Contents

Introduction	
1. <i>Pictorial and Written Overview</i>	3
2. <i>Understanding and Communicating with Extraterrestrials is Dependant on Understanding Ourselves and Our Planet</i>	8
Chapter One	15
<i>Understanding Extraterrestrials</i>	
Chapter Two	
<i>Viewing the Extraterrestrials</i>	35
Chapter Three	
<i>Classifying the Extraterrestrials</i>	51
Chapter Four	
<i>A Greater Understanding of Humans and Extraterrestrials</i>	77
Chapter Five	
<i>The Principles of Science</i>	81
Chapter Six	
<i>The Functioning of Human and Extraterrestrial Planets</i>	90
Chapter Seven	
<i>Understanding People</i>	99
Chapter Eight	
<i>Humans and Extraterrestrials as Populations of Symbiotic Bacteria</i>	115
Chapter Nine	
<i>From Crystals to Fungi and the Development of Consciousness</i>	120
Chapter Ten	
<i>Humans and Extraterrestrials as a part of Universal Consciousness</i>	128
Chapter Eleven	
<i>Extraterrestrial Contact & the Universal Ecosystem</i>	169
Chapter Twelve	
<i>The Possibility that Extraterrestrial Technology Operates our Civilization</i>	194

Understanding Humans and Extraterrestrials

Introduction

1. Pictorial and Written Overview



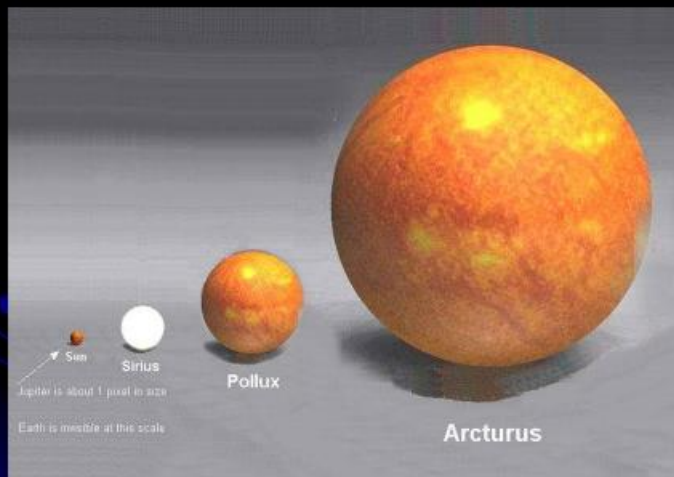
For over 100 years, researchers have received detailed descriptions of intelligent, tool-using, extraterrestrial species, visiting this planet in their vehicles (Huyghe 1996). From these eyewitness reports, a classification of these species can be attempted using the same methodology used to classify species naturally occurring on this planet. Patrick Huyghe in his book *The Field Guide to Extraterrestrials*, (Avon Books, 1996) developed a classification table and divided these undescribed species into Classes, Types and Variants. The Classes are Humanoid, Animalian, Robotic and Exotic.

Even though terrestrial and extraterrestrial species are unrelated, the laws of physics and nature and the chemical interactions that occur on Earth are like everywhere else in the universe except perhaps in black holes. The chemistry of the compounds making up the genetic code of every life form on Earth demand that terrestrial and extraterrestrial species will be chemically similar. The genetic code determines the appearance and makeup of all living things and will fit together in precisely the same way anywhere in the universe. Every individual is intrinsically interconnected with the rest of the universe. Most of the universe is extremely volatile and violent with exploding stars and black holes producing massive amounts of deadly radiation. The process that we refer to as life appears to only be possible in very stable and harmonious situations, such as occurs on this planet.

Requirements necessary to create a living planet

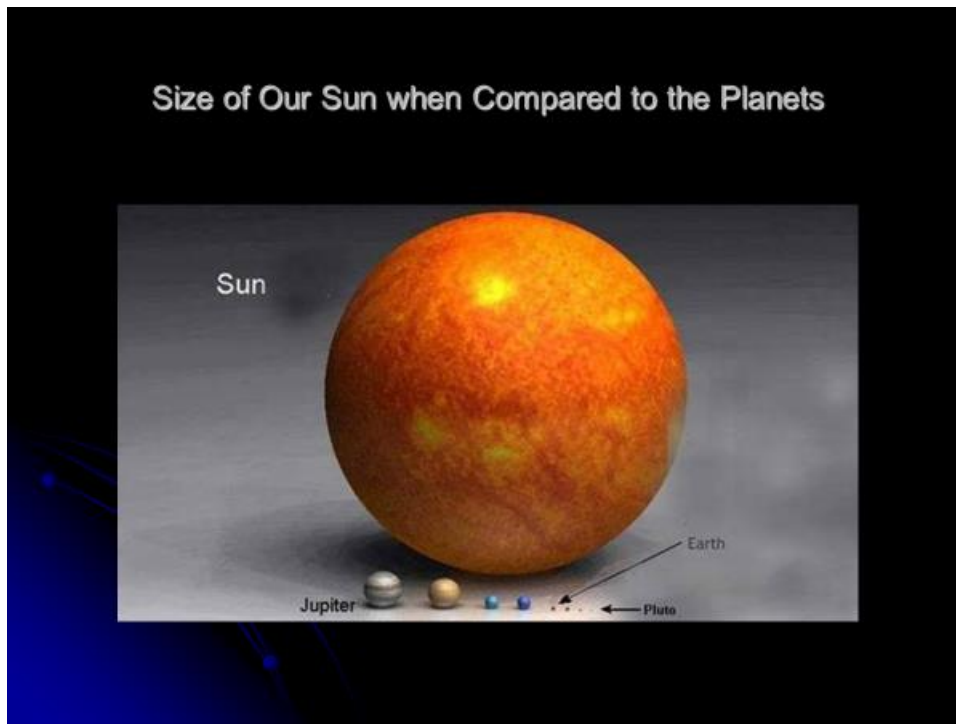


Size of our Sun Compared to Nearby Stars



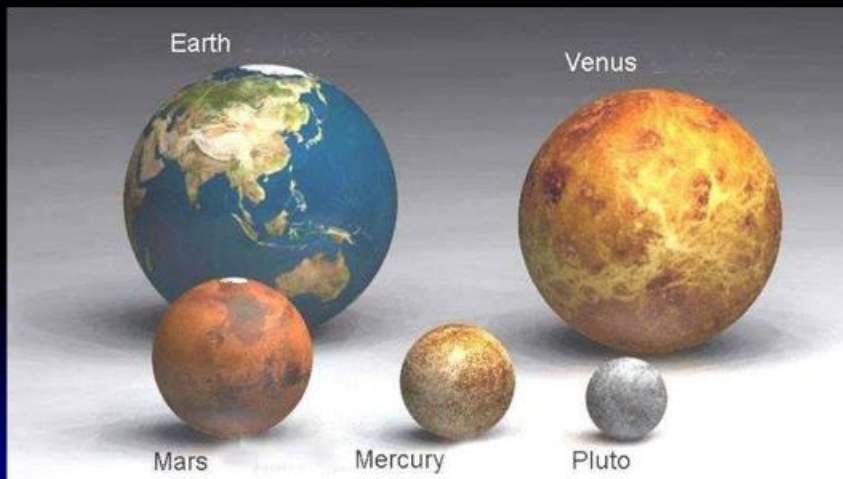
- 95% of stars are smaller than the Sun, larger than the Sun, or are binary stars or variable stars, too volatile for the stable conditions necessary for life. A star that can support a living planet has to be remarkably stable and capable of producing a steady energy output for billions of years.
- Many stars are too large and so consume their energy too rapidly. If our sun were 30 % larger it would have burnt out in 4 billion years, too short a time for intelligent life to evolve. It took primitive algae 2 billion years to pump enough oxygen into the atmosphere before it could support animal life and so conditions must be stable for an immensely long period of time. Our planet froze solid twice in its history before multi-celled organisms existed. It froze solid the first time for two million years and the second time for thirteen million years. Sunlight on the frozen planet created ozone and enriched

the atmosphere with large amounts of oxygen. There was no other way for an oxygen-rich atmosphere to be created. If that had not occurred the planet today would only support single-celled microbes.

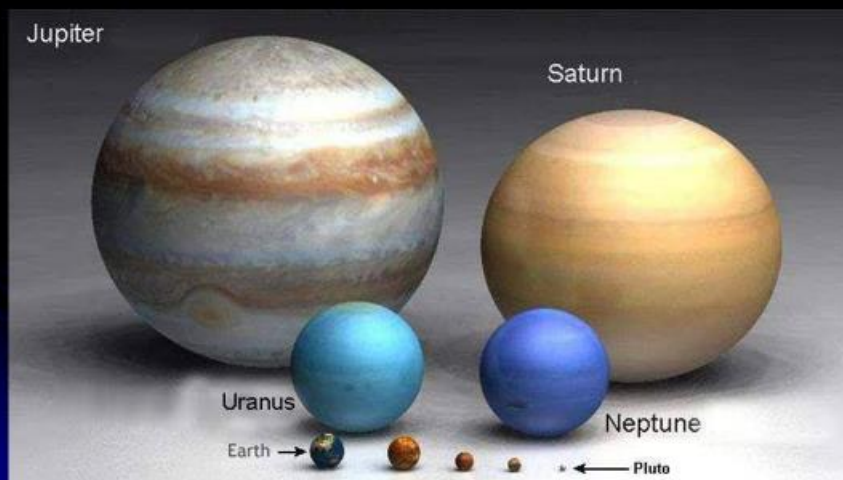


- Not only does one need just the right sized star for life to evolve on a nearby planet, but that planet must also lie within a narrow habitable zone within which a planet must orbit for water on the surface be liquid. The habitable zone in our solar system stretches from 5 % closer to the sun than the Earth is, to 15 % farther away. The habitable zone is moving steadily outwards as the sun burns more fiercely over time.
- The sun's brightness has increased by 30 % during the past 4 billion years and within the next 3 billion years the habitable zone will have moved beyond Earth's orbit and all water will have boiled off the planet. The chances for any planet remaining in the habitable zone long enough for complex animal life to evolve are small.
- A spinning core and an improbably large moon are essential for life on this planet. It is necessary that our planet has a nickel-iron core at its centre that is spinning faster than the rest of the planet. This creates a magnetic field that protects the surface of the world from the deadly solar radiation. Without this remarkable feature there could be no possibility of life on Earth. The landings on the Moon in the late 1960s and early 1970s would have needed solar radiation protection beyond any technology known today, as people can only safely exist in low Earth orbits below the magnetic shield that protects us all. The Moon lies beyond that magnetic shield.
- A living planet also needs a very large moon to stabilise the tilt of the planet's axis so that the surface temperatures on the planet also remain stable and within a narrow habitable zone. Life is only possible here because the Earth has an improbably large moon that stabilised the tilt of the world's axis at 23 degrees. If it was positioned like all the other planets in our solar system, the poles would be permanently frozen, and the equator would be permanently boiling.

Size of Our Earth to Our Smaller Planets



Size of the Earth Compared to Our Other Planets



- If our planet was standing virtually upright, in relation to its orbit around the Sun, like all the other planets in our Solar System, there would be incredibly hot equatorial temperatures contrasting with extremely frigid poles. As the hot air rose over the equator and cold air rushed in from the poles it would create catastrophic conditions with rapidly moving air and sea currents. Such violent and unstable weather patterns with frequent cyclonic winds and tornadoes and sudden increases and drops in temperature would provide little opportunity for complex life to develop on this planet.
- The tilt of the world's axis and the size, weight and position of the Moon are essential for the stable weather conditions that makes our existence possible. But where did our Moon come from?

- The Earth is 3.66 times as big as the Moon but unlike a normal moon or planet, our Moon does not have a dense and heavy core and is very light weight as it does not have very much mass. In fact, the Earth is 81 times heavier than the Moon. Moon rock is very similar to the rock that forms the Earth's crust and the mantle. Therefore, it is believed that a Mars-sized planet impacted with the Earth during the formation of the solar system, separated and then impacted again. It is only under these very special circumstances that it would be possible for material to be thrown off that eventually formed the Moon and would have come from close to the surface of the two colliding planets.
- It is believed that about 70% of the Earth's crust was removed to form the Moon. That amount of crust would have filled the world's ocean basins with wall-to-wall continent. The removal of 70% of the Earth's crust triggered plate tectonics. This allowed space for the planet's crust to move and create changing continental and ocean shapes. Without plate tectonics our world would most likely be permanently covered by oceans
- If the Moon had not existed, there is no possibility for the Earth to have permanently maintained a tilt of around 23 degrees. The highly unstable internal molten activity would have caused our planet to have a highly unstable obliquity of between 0 and 60 degrees, as has occurred with Venus and Mars, making life beyond bacteria impossible as the planet boiled and froze.
- There is the possibility that the Moon may be an artificial object that was constructed and placed where it is to provide stable conditions for life on the planet that it orbits. Perhaps the Earth's tilt is also an artificial construct, otherwise there would be no opportunity for complex organisms to develop and survive on this planet. However, every part of the universe operates in an accidental manner, energy and matter resulting from the massive play of forces that the universe is created from and which interacts within itself. Anything can appear to be planned in hindsight.
- Almost every other solar system studied by astronomers contains huge gas planets close to their star in the orbits of Venus, Earth and Mars. The massive pressure exerted on the planets from the rest of the stars in the galaxy always pushes the gas giants in towards their star. On only extremely rare occasions the gravity from the outermost gas giants can disrupt this process and drag the inner gas giants back away from the star. This occurred in our solar system when the gravity of Saturn, as it was pushed by the galaxy's solar winds towards the Sun, acted upon and dragged Jupiter away from its orbit near Mars. Mars lost much of its matter at this time and as Jupiter was spun back out it also dragged Saturn back out to orbit in their present positions. No life would have developed in this solar system without that accidently process. One of the solar system's large planets was also more violently dragged out and was lost within the outer rim of the system.

2. Understanding and Communicating with Extraterrestrials is Dependant on Understanding Ourselves and Our Planet

We generally take our existence for granted and tend to regard ourselves and our planet Earth as nothing especially important. On a TV program I once watched on UFOs a sceptic asked “why would ETs be interested in us and consider visiting our planet? The TV host agreed that there would be no reason for ETs to bother with us; we are just too ordinary to bother about. Something similar is generally said about our planet’s natural environment, that it is not worth protecting because we humans are more important.

Both statements are profoundly wrong. The plants and animals that make up the ecosystems of our planet recycle the energy and nutrients essential for the survival of human civilization and yet everywhere they are being carelessly and needlessly exterminated. Vast numbers of people are so ignorant that they don’t understand that it is only the plants that keep us alive from one second to the next as they take the carbon dioxide CO² (1 carbon atom & 2 oxygen atoms) out of the air with their leaves using sunlight to break the bond and produce oxygen that makes it possible for animals to breath. The carbon left over the plants then use to make leaves, stems, roots, vegetables, fruit, flowers and seeds and so feed us.

Insects such as bees, wasps, flies, beetles and butterflies flying from flower to flower pollinate our crops so that they will bear fruit and seeds. Yet insects are generally regarded as useless bugs and are being exterminated everywhere as we bulldoze every patch of forest and scrubland (our ecosystems that provide habitat for plants and animals) for much more important human reasons like profit or more space for us. Honey bees are going extinct everywhere due to pesticides and genetically altered food plants and experts agree that within months after they go completely extinct all of humanity will starve the death.

Although we humans are utterly dependant on the health of the plants and animals surrounding us, we tend to think that we are somehow separate from everything else and that we don’t really need them. We are oblivious to the fact that our own bodies are composed of trillions of tiny living cellular beings that protect us from endless numbers of viruses and bacteria (germs), 10,000 in every square metre of air, which would otherwise devour us. Trillions of tiny living cellular beings digest our food for us within our intestines. This is the same for all the other animals.

These living cellular beings are not even remotely related to us. They have colonised us. We provide habitat (a place to live) and in return they protect us, support us and feed us and this has been happening since life began on this planet. Human cells make up most of our brains, lungs and blood system but are otherwise outnumbered by non-human cells that make up between 90 and 99% of our actual body. So, we are not the humans that we tend to think we are. Together with all the other life forms we make up the unique living surface of our planet.

Our living planet is also not ordinary. For a planet to sustain life there must have been many extraordinary occurrences in times past. Even our solar system (star/sun and planets) is not ordinary. Astronomers have now studied hundreds of other solar systems and none of them appear to be able to support a living planet, primarily because their suns are too large and the planets near their suns are also too large.

A star that can support a living planet has to be remarkably stable and capable of producing a steady energy output for billions of years (the light and heat that makes us possible). Many stars are too large and so consume their energy too rapidly. If our sun were 30 % larger it would have burnt out in 4 billion years, too short a time for intelligent life to evolve. It took primitive algae 2 billion years to pump enough oxygen into the atmosphere before it could support animal life and

so conditions must be stable for an immensely long period of time.

A living planet must also be exactly the right size to support life because the gravitational strength is essential. If the planet is smaller than Earth, like Mars, the gravity will be too weak to hold on to its atmosphere and it will dissolve into space. If the planet is larger than Earth, the gravity will be too strong and crush everything. For living things to exist on a planet the atmosphere must be just right. It is the gravity that creates the size and shape of humans and all plants and animals. Our bodies are continually pushing outwards to counteract several tonnes of atmosphere pushing down on top of us. We are so used to it that we think nothing of it.

We humans take everything for granted to such an extent that we don't even care about the atmosphere that makes us possible. We use it to take all our gaseous waste, particularly excess CO_2 from burning coal and gasoline, for power stations and transportation. The excess CO_2 absorbs heat and increases the planet's atmospheric temperature. We refuse to believe in global warming and climate change, and we refuse to believe that the hotter atmosphere is creating more destructive hurricanes and tornadoes, wilder weather swings, greater flooding, killing more and more people and costing our civilization more and more money.

Not only does one need just the right sized star for life to evolve on a nearby planet, but that planet must also lie within a narrow habitable zone within which a planet must orbit for water on the surface to be liquid. The habitable zone in our solar system stretches from 5% closer to the sun than the Earth is, to 15% farther away. The habitable zone is moving steadily outwards as the sun burns more fiercely over time as it consumes its hydrogen fuel.

The sun's brightness has increased by 30 % during the past 4 billion years and within the next 3 billion years the habitable zone will have moved beyond Earth's orbit and all water will have boiled off the planet. The chances for any planet remaining in the habitable zone long enough for complex animal life to evolve are small.

It is also essential that our planet has a nickel-iron core at its centre that is spinning faster than the rest of the planet. Our planetary core is spinning at about three feet (one metre) a year faster than the rest of the planet and this creates a magnetic field that protects the surface of the world from the deadly solar radiation. Without this remarkable feature there could be no possibility of life on Earth. There is no chance of life ever existing on Mars because it does not have a faster spinning core and deadly radiation continually pummels it.

It is also important to have a giant gas world like Jupiter at just the right distance away so that it can act as a gravitational field that can protect a living world from the vast number of comets and asteroids that would otherwise impact the planet. Just one such impact put an end to the 140-million-year long reign of the dinosaurs and exterminated a vast number of other important animal and plant species. It took millions of years (orbits around our star, the Sun) for the natural ecosystems to restore themselves to such a state that advanced being like ourselves could exist.

A living planet also needs a very large moon to stabilise the tilt of the planet's axis so that the surface temperatures on the planet also remain stable and within a narrow habitable zone. Our planet was very fortunate to have been involved with an impact with another Mars-sized planet at just the right time when it was still forming, so that it ended up with an improbably large moon that stabilised the tilt of the world's axis at 23 degrees. Our planet is still wobbling from the impact and creating the seasons that balance the planet's weather.

If our planet wasn't tilted, standing virtually upright, in relation to its orbit around the Sun, like all the other planets in our Solar System, there would be incredibly hot equatorial temperatures contrasting with extremely frigid poles. As the hot air rose over the equator and cold air rushed in

from the poles it would create catastrophic conditions with rapidly moving air and sea currents. Such violent and unstable weather patterns with frequent cyclonic winds and tornadoes and sudden increases and drops in temperature would provide little opportunity for complex life to develop on this planet.

So, the tilt of the world's axis and the size, weight and position of the Moon are essential for the stable weather conditions that make our existence possible. But where did our Moon come from? The earliest theories for the birth of the moon, that it was spun-off from the Earth when the originally larger planet was still molten, that the Moon was formed by an accumulation of rocks that were in orbit around the Earth or that the Moon was captured as it drifted past, have now been decisively abandoned.

The Giant Impact Hypothesis or Big Whack Theory is now the most favoured explanation as to how the Moon came into existence and this theory originated in the Soviet Union, specifically from the work of V. S. Savronov in the 1960s and William K. Hartman and D. A. Davis, of the Planetary Science Institute, Tucson, Arizona in the 1970s. A Mars-sized rogue planet hit the Earth in a very specific way that allowed jets of matter to be ejected from the mantles of both planets which was thrown into orbit and eventually came together to form the Moon.

The Earth is 3.66 times as big as the Moon but unlike a normal moon or planet, our Moon does not have a dense and heavy core and is very light weight as it does not have very much mass. In fact, the Earth is 81 times heavier than the Moon. Moon rock is very similar to the rock that forms the Earth's crust and the mantle. Therefore, it is believed that the core of the rogue planet joined with our planet's original core as they impacted, separated and then impacted again. It is only under these very special circumstances that it would be possible for material to be thrown off that eventually formed the Moon and would have come from close to the surface of the two colliding planets.

It is believed that about 70% of the Earth's crust was removed to form the Moon. That amount of crust would have filled the world's ocean basins with wall-to-wall continent. This may have triggered plate tectonics allowing space for the planet's crust to move and create changing continental and ocean shapes. Without plate tectonics our world would most likely be permanently covered by oceans.

For this to have happened, the rogue Mars-sized planet would have had to have been travelling fast from a distant part of the solar system. It is possible to determine how far from the Sun a planet, moon or asteroid formed because their rocks have a different oxygen isotope signature. The Moon's rocks should have a different oxygen isotope signature that would fit in with the theory that the rogue Mars-sized planet had originally formed distant from the Earth.

However, when rocks were brought back from the moon, both by American astronauts and Soviet unmanned moon missions, they were found to have the same oxygen isotope signatures, which can only happen if both planets originated at the same distance from the Sun. It is unexplainable how two large planets could have occupied similar orbits for millions of years and then collided. Another strange fact is that it was found that the Moon generally lacks heavy metals when compared with the Earth which accounts for its large size and small mass.

The Moon rocks also provided another surprise. Radioactive dating techniques of meteorites show that they are, uniformly, found to be 4.6 billion years old, close to the estimated age of our solar system. The most ancient Earth rocks date back to 3.5 billion years when the molten crust of our planet finally hardened into rock. Moon rocks were dated at 4.5 billion years, making the Moon older than the Earth.

There is also no explanation as to exactly how the Earth's 23-degree tilt against the plane of its orbit around the Sun (its obliquity) was created by an impact with such a planet. To tilt a planet the size of the Earth would need a gigantic impact and a Mars-sized planet in an orbit like the Earth would not have had enough momentum to knock the Earth's angle of rotation back so severely. If the Earth's tilt was caused by the size of the impact needed, then it would have also increased the rotation of the Earth to a level far beyond today's situation of 24 hours in a day.

The Moon has another major anomaly, instead of a generally constant gravitational field as the Earth exhibits; the Moon has huge variations in gravity across its surface. As a planet or moon forms, all the heaviest material sinks to the core creating a constant gravitational field across its surface. The Moon is different and does not have a heavy core, its densest regions lie in places below the surface. In 1962, NASA scientist Dr Gordon McDonald published a report in the *Astronautics Magazine* where he stated that analysis of the Moon's motion indicated that the Moon is hollow.

The Moon landings also provided evidence that the Moon may be hollow. The Apollo 13 Moon landing mission lost two of the three fuel cells in the service module due to an explosion on 13 April 1970. The landing was cancelled, and the spacecraft swung around the Moon to return home. As it did so it released the fifteen tonne third stage of the Saturn V launch vehicle which struck the Moon with a force of eleven and a half tonnes of TNT.

In November 1969 the Apollo 12 astronauts had set up a seismometer on the Moon's surface and having returned to their command craft sent their lunar module crashing back down. It struck with a force of one tonne of TNT causing shock waves to pass through that portion of the Moon. This registered on the seismometer showing a build up to a peak in eight minutes and then continuing for nearly an hour. The seismic signals produced by the impact from Apollo 13 eighty-five miles away had peak intensity after seven minutes and the reverberations lasted three hours and twenty minutes, travelling to a depth of 25 miles.

The rapid build up to the peak, the prolonged reverberations and the precise way that the whole structure of the Moon wobbled means that the Moon rang like a bell. It can only do this if the Moon is hollow or that it is constructed out of lightweight rock with a very tiny metal core ranging from 680 km (420 miles) to 860 km (532 miles) in diameter. Either way, the Moon's origin is unique, unlike any other terrestrial body. If the Moon was not constructed out of such light weight material or was not hollow its gravitational pull would rip the surface of the Earth to pieces every time it passed overhead, and we would not exist.

Dr Sean C. Solomon, director of the Terrestrial Magnetism Department of the Carnegie Institute of Washington and Principle Carnegie Investigator for the NASA Astrobiology Institute stated: "The lunar orbiter experiments vastly improved our knowledge of the Moon's gravitational field.... indicating the frightening possibility that the Moon may be hollow."

It is well understood that any natural heavenly body such as a planet or its satellites cannot be hollow objects. Dr Solomon apparently used the term *frightening* because it means that we are not alone in the universe and that someone set up conditions a very long time ago to make it possible that advanced life could eventually develop here. Perhaps they are still here and watching over us.

Long before life had developed beyond the single cell stage, the Earth twice completely froze over from the poles to the equator, once for 2 million years and the second time for 10 million years, as the Earth's orbit moved slightly further from the Sun. Sunlight on the ice produced vast amounts of oxygen that flooded the atmosphere that made it possible for multicell organisms to live. Otherwise, the complex physical and ecological systems have done a very good job of

maintaining a stable temperature on the Earth even with the Sun's steadily growing luminosity. If the Moon had not existed, there is no possibility for the Earth to have permanently maintained a tilt of around 22.5 degrees. The highly unstable internal molten activity would have caused our planet to have a highly unstable obliquity of between 0 and 60 degrees, as has occurred with Venus and Mars, making life beyond bacteria impossible as the planet boiled and froze.

All these facts provide evidence that the Moon may be an artificial object that was constructed and placed where it is to provide stable conditions for life on the planet that it orbits. Perhaps the Earth's tilt is also an artificial construct, otherwise there would be no opportunity for complex organisms to develop and survive on this planet. It turns out that our solar system is not as ordinary as it first appeared to be. When compared to what we have been able to observe of the rest of the nearby galaxy our situation is both unique and perhaps unnatural. If all these remarkable coincidences are purely the result of natural universal accidents it shows that the conditions for the development of advanced life forms as us, literally bags of water hanging on a mineral frame, as the human body is, would occur on very rare occasions.

Christopher Knight and Alan Butler in their book *Who Built the Moon* (Watkins Publishing, London 2005) looked at the reciprocal numbers inherent in the Earth-Moon-Sun system and were staggered by what they found. The Moon has a sidereal rotation of 655.728 hours, which means it rotates once every 27.322 Earth days. The Moon's equatorial circumference is 10,920.8 km. The Earth is rotating at a speed of 40,000 kilometres a day and the Moon is rotating at precisely 100 times less at a rate of 400 km per Earth day. The moon is 400 times closer to the Earth than the Sun and is one 400th the size of the Sun. If we multiply the circumference of the Moon by that of the Earth, the result is 436,669 km, which is the circumference of the Sun, correct to 99.9%.

Knight and Butler have long been interested in the 5000 year old English Megalithic culture and the work of Glasgow University Scottish engineer Alexander Thom who surveyed the giant stone arrangements in the 1930s. Thom developed a new statistical technique to establish the relative positions of the stones and found that these stones were astronomically aligned. He further discovered that these ancient people had been building these monuments across a huge area of thousands of square km of dense forest and moorland with a supremely accurate standard unit of measurement, which he named the Megalithic Yard, which measured 2.722 feet or 82.966 cm.

One of the simplest of all devises is a weight suspended on a piece of string. If allowed to hang, the weight of a plumb bob or pendulum will pull its string into a perfectly vertical position creating the plumb line essential to construct buildings. Knight and Butler went on to demonstrate that any person can generate a highly accurate Megalithic Yard by measuring the movement of Venus using a rope, some twine, a blob of clay and some sticks to create a pendulum. A pendulum is responsive to only two factors; the length of the pendulum and the mass of the Earth. If the pendulum beat 366 times during the transit of Venus across a 366th part of the sky, the distance from the fulcrum to the weight was a mathematically perfect half Megalithic Yard. The Sumerians devised a similar method to measure the transit of Venus across a 360th part of the sky.

Knight and Butler have uncovered a mathematical message in the measurements of the Earth-Moon-Sun system as follows;

- 366 = the number of rotations in an Earth year,
- 366 = the number of Megalithic Yards in 1 Mg second of arc of the Earth,
- 366 = the percentage size Moon to Earth,
- 400 = the ratio of the size of the Moon to that of the Sun,
- 1/400th = the number of times the Moon is closer to the Earth than the Sun,
- 40,000 = the number of Megalithic Yards in 1 Mg second of arc of the Sun,
- 40,000 = the number of km the Earth turns on its axis in a day,

400 = the number of km the Moon turns on its axis in a day,
 10,000 = the number of days in 366 lunar orbits
 100 = the number of Megalithic Yards in 1 Mg second of arc of the Moon,
 400 = the number of times the Earth rotates faster than the Moon,
 109.28 = the ratio of the size of the Earth to that of the Sun,
 109.25 = the ratio of Earth diameters across the diameter of the Sun,
 109.26 = the number of solar diameters across the Earth's orbit at aphelion,
 27.322 = the sidereal days in 1 lunar orbit, $27.322 \times 4 = 109.2$,
 27.322% = the percentage size Earth to Moon,
 10,920.8 = the size of the Moon in kilometres.

Knight and Butler pose the question “why do we find a consistent and beautiful sequence of integer numbers when looking at every major aspect of the Moon, whereas no pattern emerges for any other planet or moon in the solar system?” These continually re-occurring numbers are unique in the known universe and consequently appear to be a simple message that states that the Earth-Moon-Sun system is unlike everything else and possibly an artefact of intelligence. Of course, this unique inner planet of our solar system is the only known habitat of universal life and universal consciousness. The rest of the observable universe is entirely random and chaotic even though it is under the identical universal laws that have created our unique system.

Once we have found evidence of an artefact of intelligence in the mathematical measurements of our own location it is obvious that we should be watching for any other signs of that intelligence. If there were no reports of UFOs over the centuries then we can possibly state that the Earth-Moon-Sun system may well be an incredible accident of quantum mechanics, gravity and the entire space-time continuum and we, the living planet Gaia, are the first and only example of complex universal consciousness. In the evolution of our expanding universe there must be a first blossoming of life somewhere and perhaps we are it.

If there have been reports of a similar pattern of phenomena stretching over the centuries that includes unidentifiable objects, then we must examine it. We usually refer to these phenomena as UFOs or unidentified flying objects which are often associated with observations of life forms that usually remind us of ourselves more than any other animal or plant. We must also examine everything that we know about ourselves and our Earth-Moon-Sun system and try to determine what the UFO and ET phenomena is and then do our best to describe it. What is the potential for there to be many examples of life and consciousness scattered amongst the stars and galaxies?

Professor of Astronomy, Donald Brownlee and Professor of Geology, Peter Ward, both working at the University of Washington in Seattle, have put forward the hypothesis in their book, *Rare Earth*, that simple life in the form of bacteria and viruses may be scattered throughout the rocky planets orbiting their stars. However, complex life forms would almost never be encountered because of a lack of suitable stable stars and suitable planets within the habitable zone.

To have a naturally occurring living planet is like throwing a ‘six’ eight or nine times when gambling on dice. It may occur as an extreme rarity and similarly there may be only a small number of naturally occurring living planets throughout the universe. Stefano Breccia in his book “50 Years of Amicizia /Friendship” (Warren P Aston 2013), describing mass alien contact in Italy from 1956 to 2006, states that their extraterrestrial contacts told them that there are only fifty planets in the universe that are naturally occurring living planets and from which intelligent life has evolved and that the Earth is one of these fifty. His ET contacts told him that is the reason why ETs are so interested in our planet and why so many different alien species regularly visit our planet and take DNA, the building blocks of life.

Only a hundred miles below our feet the temperature reaches thousands of degrees, the planet is primarily composed of liquid rock as white hot as the Sun. Just above our heads the temperatures

are freezing. This sphere of life clings precariously to the planet's surface. Any intelligent extraterrestrial space-travelling species would not regard us or our planet as ordinary and neither should we. Our greatest tasks in life should be protecting our living planet from the damage that we are unwittingly doing to it. Because we and our living planet are so very fragile and so easily destroyed, we have an obligation to do everything possible to protect all life on this planet and its living surface.

Almost everything that we thought we knew about ourselves has turned out to be wrong. Just like adults who admit how wrong they were when they were know-it-all teenagers, it is normal to increase our knowledge and understanding as we grow. Once we thought we lived on a flat earth with various gods responsible for our wellbeing. Now we know that we exist within a vast universe of galaxies, stars and planets. Once we thought that we were alone, now we are slowly learning that there appears to be others as well.

Already we have begun to shape these others into our old mythologies with channelers and others of their ilk, talking about alien warfare amongst good ETs (who happen to look like us) and evil beings (who happen to look like things that many of us don't like much, such as reptiles). The reality will almost certainly be much more complex. Any intelligent species would have had to develop a very wise and peaceful society to have been able to successfully develop a space travelling ability. Any war-like species would unlikely survive their own internal battles, much less be able to successfully travel in space and attack other advanced species. If they have little regard for others, they are unlikely to have much regard for their own kind. It is unlikely that there are any bad aliens as there are no bad humans or bad animals or plants, just different individuals and species trying to survive and live together.

Intelligent species are more likely to act like species and communities on this planet, peacefully interrelating with each other. The only reason that we live is because vast numbers of completely different species of plants and animals live together for the greater good. Vast numbers of completely different species of minute single-celled plants and animals live together in each of us to create humans and all other life forms. Vast numbers of completely different species of large multi-celled plants and animals live together around us to create the living breathing surface of our planet. It is possible that numbers of intelligent species of extraterrestrials, that had independently evolved on planets scattered across the universe, now live together for the greater good. As it is in Heaven, so it is on Earth.

The word 'race' relates to different populations of the same species, also referred to as subspecies. Consequently, it is incorrect to refer to aliens as races. There are four races of humans; Caucasoid, Negroid, Mongoloid and Australoid, referring to people from Europe, Africa, Asia and Australia. However, because of past troubles with racism, the old-fashioned term of 'race' should not be used, and we now talk of populations of people. Consequently, we should not use the word 'race' when referring to extraterrestrials. We don't need any more racism; we have had too much of it on this planet already.

We do need to communicate with those intelligent extraterrestrial space-travelling species that appear to interrelate with us. We know from long experience that communication is impossible if either have a limited consciousness. We have enough trouble trying to communicate with different nationalities on Earth. Many uneducated populations still exist believing in the 'knowledge' that dominated societies a thousand years ago and consequently are hostile if one does not agree with their beliefs, religions and traditions. We cannot communicate with aliens if we do not have an advanced state of knowledge. To communicate with anybody, we must understand their conception of us. For us to communicate with extraterrestrials we must understand their viewpoint. Their viewpoint will be universal. Consequently, our knowledge and viewpoint must also be universal.

From the outset let me state that I have not had any encounters with presumed extraterrestrial organisms or their craft. However, I have always been interested in all aspects of natural phenomena and one can hardly fail to notice the increase of extraterrestrial-related material permeating our culture. Aliens now feature in ever more science fiction books, television programs, films and video games. Of much greater interest are the reports of actual encounters with aliens published in books, magazines and occasionally appearing on television programs relating to unexplained phenomena.

Many people naturally dismiss these reported encounters as hoaxes because of a lack of correlating evidence and the bizarre circumstances involved. However, there have now been such an enormous number of reports, ongoing through time and apparently increasing in number, that the time has come when we must open our minds to incorporate additional information.

So much research has been conducted and such a wealth of data accumulated that it is now possible to look at the patterns and trends contained within these reports. Along with the results of the research into a wide array of other scientific disciplines, they shed light on a universal ecosystem of which we are a part.

There are a great many scientists studying the extraterrestrial enigma, some of them searching for the radio signals from alien civilizations. Because these scientists are all specialists in their fields, they are often unaware of the research of other scientific disciplines. So, we have the situation in which many scientists are positive that extraterrestrials must exist and are actively looking for their communication signals, whilst completely ignoring the research by other specialists into the many reports of contacts by people with aliens right here on Earth.

Let us look at just one reported case of a close encounter of the third kind. Jan Siedlecki, an automobile mechanic at Brydon's Garage, Cross Gates, Leeds, England, was awoken by a bright white glow at 2 am, on a humid summer night during 1976 and fearing that the garage, adjacent his house, was on fire, jumped out of bed to investigate. From the window, he saw a glistening deep-blue saucer-shaped craft, 6 metres wide and 3 metres high, wobbling in the air as it descended 75 metres away to land on three legs in a park adjacent a large housing estate. He dressed and went outside, ran across York Road and hid behind a fence to closer observe the craft. He looked for other people and cars to witness the event but strangely enough no one else seemed to be about and no cars drove by.

Two humanoid figures, only 1.2 metres high and clad in yellow-orange one-piece suits with helmets and darkened visors covering their faces, emerged from a large tube that descended from the central underside of the craft. They beckoned Jan to come over to them and adjusting instruments on a panel that each wore on their chest, communicated in a tinny voice "We are in trouble with ship, we will have to make repairs before we leave. We apologize for the intrusion. As soon as repaired we go."

Jan asked them how the ship worked, and they replied "If you want to come, come. We go inside now. The lift will come down for you if you want to come." Jan was frightened but followed them under the craft where he observed two rows of small rotor blades rotating very slowly, one clockwise and the other counter-clockwise. The lift in the tube rose into the craft, the doors opened into a metal cabin, illuminated with a constant yellowish-orange light coming from all the internal panels, there were no windows, and he became aware of the smell of rotting grass.

The two humanoids led him up a sloping ramp that spiraled around the craft's inner perimeter into a room, described by them as the cooling system, which contained a 60-cm wide channel of

flowing water, out of which grew 60-cm high green grass. The door, into what Jan was led to believe was the engine room, opened and he saw five crouched figures with their heads bent down between their hands and knees around a circular pool containing a black, bubbling oil-like substance from which flashes of red light darted into the air. These figures were dressed in black one-piece suits with no helmets and they had brown hair. He looked up and saw the central dome of the ship and a football-sized ball of orange light darting back and forth. The craft appeared much larger inside than it looked from the outside and Jan reasoned that it could hold a maximum of 30 people.

Jan then heard many footsteps, as if there was panic, and one of the humanoids very politely informed him that he would have to leave now because they had got a "space-bug". He was ushered outside and told to run, after which, he heard a loud, high-pitched whistling sound, the legs and lift tube slid up inside the craft and it shot away at a 45-degree angle into the sky reaching the thick cloud cover in no more than four seconds. Jan returned home and told his wife who, quite naturally, refused to believe him.

Should we believe this strange story? Perhaps Jan made it all up. It does sound like something that one would expect in a 'B' grade science fiction film. One would have expected a more realistic story with wise aliens working with computers if Jan had invented the story to impress his wife.

We can attempt to test the validity of the story by simple experimentation. The reader can join the experiment if he or she so desires. Commit the story to memory and tell it to a friend or relative as if it really happened to you. You will have to behave in a completely serious manner and even act somewhat shocked. Then note the reaction from those that you have related the story to.

Remember that we are all experts at determining whether our friends and associates are telling us the truth. We constantly monitor each other's body language because it is essential for our survival to be able to determine who can be trusted and who is trying to swindle us in one way or another. The survival of our societies depends upon individuals relating precise information on potential predatory activity. Individuals feel compelled to relate any experience that may have important consequences for the community. Even if one tells a fanciful story, the individual will usually assure the audience of a lack of information with winks and grins.

So, you will have to be a very good actor to successfully relate a fanciful story about incidents that may have powerful repercussions on your community. The story you generate may then spread and you will have to back it up with statements to the police and to journalists. Perpetrating a hoax has poor rewards. If you are successful with your hoax you will probably be regarded by most of your associates as in need of psychiatric help.

The implications of this test would be that the witness must have truly believed that the experience occurred for we all know that the survival of ourselves within our society depend upon how much reliance others have on us. It is this fact that has convinced many witnesses of unexplainable phenomena to shy away from publicizing their experience. Though once the information leaks out, they are generally relieved because they can then commence their community duty and earnestly explain what they have observed.

Most members of the community understand all this. Extra strength is weighted to the truth of the report if the witness expresses his or her own prior disbelief for extraterrestrial existence. This is because of the religious and/or scientific convictions that generally compel us to believe that "we are alone." Because of the number of reports and the seriousness of the consequences many people now believe that extraterrestrials are visiting us. We could well imagine deranged

individuals reporting all kinds of weird things but when trusted members of the community begin to report similar occurrences the alarm bells begin to ring. If there were really no such things as UFOs and extraterrestrials there would be no reports of such things.

Surveys of the general public since the mid-1960s have resulted in half or more of those queried seriously believing that UFOs are extraterrestrial spacecraft. However, if so, many people believe that we are being contacted by extraterrestrials, why is it that there is such a dearth of scientific researchers studying the phenomena? This must be one of the greatest enigmas of our time. A vast proportion of our population convinced of extraterrestrial contact contrasting with no interest in the subject by a vast proportion of our most intelligent researchers. And yet proof of cosmic visitors would be the discovery of the millennium, a scientific coup without precedent.

The reason for this lack of scientific interest is partly due to the disconnected nature of our research and our communication. Most scientific researchers must become extreme specialists in their fields to continue their ongoing discoveries. Few researchers are trying to tie all the information together. Scientific researchers are serious and busy people who have little time to spend concerning themselves with the many popular and often illogical beliefs that wash across the general public. Contact with UFOs and extraterrestrials appear to be one of these illogical beliefs, partly because the reports of encounters are widely dispersed across the planet and are of an uncommon occurrence. Little trace of the existence of anything solid that can be used as proof that something occurred is left behind and incidents that do receive scientific attention are constantly being forgotten.

Take for instance the powerful radio signals that the Cape Canaveral Missile Centre in Florida began to pick up from an object travelling from the Earth to the Moon in October 1958. Exactly one year after the Soviet Union had launched Sputnik 1, the first artificial satellite to orbit the Earth, the initial assumption was that the object was a secret Soviet Moon probe and the information was released to the public. Radio tracking stations around the world were quickly alerted and the scientists recorded the signals and plotted the precise position of the object.

The object had first been detected 4,800 kilometres from the Earth travelling at 14,500 kilometres per hour on a course that would take it to the Moon. However, it then reduced its speed, then twice accelerated rapidly and finally altered its course into deep space. No known rocket could alter its speed and US intelligence sources confirmed that the Soviets had not made any launches. Scientists and the general public have forgotten about this incident as they have forgotten about earlier incidents.

Between 1869 and 1871 astronomers of the Royal Astronomical Society recorded more than one hundred strange geometric patterns, including vast rectangles and triangles emitting bright lights, in the Mare Crisium (the Sea of Crises) on the Moon. In 1912 the American astronomer F.B. Harris observed a black object, which he estimated to be 80 kilometres in diameter, floating across the surface of the Moon and which cast a distinctive shadow on the lunar surface. In 1950 astronomers Dr. H.P. Wilkins and Dr. James Bartlett Jr. saw a glowing oval-shaped object hovering just above the crater Aristarchus.

From the 1940's and 1950's came ever increasing numbers of reports of unusual objects observed in the sky from all parts of the earth and there have also been many hundreds of reports of contacts with extraterrestrial beings. If these were due to unexplained hallucinations, then the sightings contrast starkly with the kind of delusions one would expect to hear about. Where are the encounters with all our cultural and mythical figures, gods and demons, dragons, unicorns, witches, wizards, fairies, goblins, griffins and vampires? If UFOs and extraterrestrials have simply replaced them then we must agree that there is a looming gap in the understanding of our reality in an otherwise ordinary and business-like world.

Encounters with ghosts and other paranormal phenomena do not appear to be particularly common. There are the occasional sightings of unknown, cryptic, animals such as yeti, Big Foot, big cats in unexpected localities, lake-monsters and sea serpents, rarely photographed and generally missing from the local fossil records. Otherwise, the world is a very orderly place where nothing unexplainable enters our consciousness. That is until a UFO turns up. It is not so important if it interacts with an auto-mechanic, but a commercial aircraft pilot is a different matter.

At 23-40 pm on 22 December 1977 Captain Walt Hammel and co-pilot Slim Dickson (pseudonyms) were flying a Trans World Airlines passenger plane approximately 600 miles out over the Atlantic Ocean bound for Boston at 21,000 feet when a huge object came up from below and paced them. Staying just off to the right of the aircraft, it was 30 metres in diameter and looked like two inverted soup bowls put together. It had a red blinking light on the top and the bottom and a series of white, reddish-purple and blue lights around the middle of the craft. The pilots could not detect any sound, prop or jet wash or any exhaust.

Suddenly a neon-green ring, 20 metres in diameter, dropped away from the UFO and hit the ocean whereupon it submerged. Then a second neon-green ring dropped away and submerged and then a third one dropped down but this one shot away straight ahead and disappeared. Then the UFO's lights went out, a bluish corona of light appeared covering the craft and the UFO accelerated off as a blue streak in the night sky.

The pilots described the events to the control tower in Boston as they witnessed it because they thought at first that another conventional aircraft was dangerously approaching them. They had a hard time explaining themselves when they were debriefed afterwards. It didn't do their careers and reputations any good to experience such unexpected phenomena.

This is just one of hundreds of reports of unidentified flying objects observed by airline pilots, astronauts, military personnel, police, doctors, scientists, security guards, taxi drivers, truck drivers, office workers, trades people, artists, farmers and hunter-gatherer tribal people. The trouble is that most of the reports are just descriptions of an alleged incident. Sometimes, though, we do get correlating evidence that something unusual happened.

The 15 September 1954 issue of *France-Soir* reported on the results of the air police investigations of a mysterious elongated craft, three metres high and six metres long that was observed by M. Marius Dewilde on the Sainte-Amand-Blanc-Misseron railway line at Quarouble Nord. It was 10-30 at night when the witness observed the object along with two small human-like beings wearing what looked like diving suits. On approaching the object, he was hit with a greenish beam of light that temporarily paralysed him and when able to move again observed the machine rising into the air.

The police discovered five indentations compressed into the timber railway sleepers, each measuring four square centimetres with sharply defined edges. Railway specialists examined the indentations and concluded that a very heavy weight exerting a pressure of 30 tons had been responsible for the marks. The gravel railway bed at the landing site was also examined and all the stones at precise locations were found to be brittle, due to intense heat, which had raised their temperature to just below their melting point. The timber sleepers and the railway tracks were unaffected by this heat.

In July 1964 Dr. Henry Frankel, head of the Spacecraft Systems Branch of NASA's Goddard Space Flight Centre at Greenbelt, Maryland, directed the analysis of metal samples discovered at Socorro, New Mexico at a site where Police Sergeant L. Zamora encountered a grounded UFO

with two occupants. Drawn to the remote location by an unexpected glow, that Sergeant Zamora feared was a nearby explosive storage area on fire, the patrolman reported that he found instead an egg-shaped craft beside which two small figures moved. One of the UFO's landing legs rested on a rock from which the samples came.

On 5 August 1964 Dr. Henry Frankel reported the results of the analysis stating, " The particles are comprised of a material that could not occur naturally. Specifically, it consists predominantly of two metallic elements, and there is something that is rather exciting about the zinc-iron alloy of which we find the particles to consist. Our charts of all alloys known to be manufactured on earth, the USSR included, do not show any alloy of the specific combination or ratio of the two main elements involved here. This finding strengthens the case that might be made for an extraterrestrial origin of the Socorro object. The alloy would make an excellent, highly malleable, and corrosive-resistant coating for a spacecraft landing gear, or for about anything where those qualities are needed."

In January 1981 the French National Space Agency, Centre National d 'Etudes Spatiales, investigated the reported landing of a small saucer-shaped object in the terraced garden of Renato Niccolai at 5.00 pm. on 8 January at Trans-en-Provence in southern France. Niccolai observed the small craft, measuring 3 m (10 ft) across and 1 m (3.3 ft) high, descending towards the ground with a whistling sound and upon climbing up the terraces to obtain a better view of the object, saw it rise back into the air revealing four openings in its underside as it flew off at tree top height. Police recorded the presence of two concentric rings, 2.20 metres and 2.40 metres in diameter forming corona 10 centimetres thick at the landing site on an onion plot.

An examination of the soil revealed that it had been tightly compacted from the strong mechanical pressure of a heavy weight of between 3.15 and 4.5 metric tonnes (3.5 and 5 tons) and it had undergone thematic heating of 600 degrees Centigrade (1100 degrees Fahrenheit). Biochemical analysis of vegetation samples around the landing site was conducted at the National Institute of Agronomy Research in Avignon. Biochemist Professor Michel Bounias, a biochemical engineer, reported that the leaves of the plants exhibited alterations that might be consistent with an electromagnetic source of stress because the leaves had the anatomic and physiological characteristics of their age but with biochemical characteristics of advanced senescence (old age). He went on to state:

"Probably for the first time after a very well characterised event concerning a UFO there was a full scientific study showing that there were some changes brought about in the plants near the where the UFO landed. These biochemical changes were decreasing with increasing distance from the UFO trace in the soil so that all the biochemical findings could be put into equations and be mathematically characterised in a very accurate way. These findings were compared with the result obtained several years later. These controls led us to realise that in the same area, two years after the event, all the findings were that the plants were recovering their normal shape and pattern of biochemical characteristics. So, it is now possible to say that in time and in distance all the biochemical findings are consistent with the description given by the witness and it is probably the first time in the world to my knowledge that such a complete set of data has been obtained on a UFO landing site."

Jean-Jacques Velasco, a French Government science spokesman for the National Centre for Space Research, at Toulouse, France, concluded:

"In effect, we were in the presence of an unidentified phenomenon which had been witnessed and that had left traces in the soil and in the surrounding environment. In conclusion after the case in Trans-en-Provence one cannot have the same perception of the UFO phenomenon. One can no longer debate whether it exists. One cannot ask 'do you believe in UFOs or do you not believe in

UFOs?’ For now, we are aware of a phenomenon that we cannot control. The stringent scientific investigation has continued for 10 years and the results conclude that all the evidence is consistent with what Renato Niccolai saw and cannot be explained by other natural causes. In other words, a UFO did land in Trans-en-Provence.”

Many witnesses have described the entities that fly these strange craft in detail. But before we look at the descriptions of the extraterrestrials it is worthwhile to try to estimate what potential there is for intelligent life to have arisen on other planets. To do this we have to look at our own planet.

Because we are all so familiar with our own world, we naturally believe that the universe may be swarming with similar worlds. Science fiction books, television programs and films, depicting earth-like planets inhabited by populations of intelligent entities exemplify this belief. Life evolved of its own accord on this world to produce an incredible diversity of spectacular animals and plants culminating with us dominating the planet. Perhaps we are just another ordinary planet orbiting an ordinary star in a universe of billions upon billions of other stars that are also liable to have habitable planets.

However, a closer examination of our circumstances proves otherwise. Scientists believe that living planets, such as the Earth, are unlikely to be found orbiting stars that are anywhere near the centre of a galaxy because the excessive radiation from the black hole at the core would be lethal. Nor are such planets likely to exist around stars near the edge of a galaxy. Planetary formation would be retarded due to a lack of heavy elements such as metals that are essential in the formation of rocky planets. It is believed that such planets will only be found where many previous stars have spewed their contents into the surrounding space during their death throes called supernovae.

It is also important to have a giant gas world like Jupiter at just the right distance away so that it can act as a gravitational field that can protect a living world from the vast number of comets and asteroids that would otherwise impact the planet. Just one such impact put an end to the 140-million-year long reign of the dinosaurs and exterminated a vast number of other important animal and plant species.

Such researchers as astronomer Michael H. Hart, engineer David Viewing, physicist Frank J. Tipler, radio astronomer Ronald N. Bracewell, physicist Andrew J. Lepage and astronomer Ian Crawford have all published papers on either interstellar and circumstellar environments, exobiology, or, reconciling the absence of extraterrestrials with the widely held view that advanced civilisations are common. Engineers have envisaged propulsion strategies that may propel spacecraft up to 20% of the speed of light that will permit us to travel to nearby stars within a few decades. So, ET's should have been able to develop similar technology and should be able to visit our planet by now.

We know that all organisms, including ourselves, have a natural desire to expand their territory, to colonise other localities and to be unconcerned about interfering with other species. The only technological civilisation that we know anything about is, of course, our own and after five thousand years of such civilisation we are almost ready to begin the colonisation of space. It has been estimated by some of the researchers that, within ten thousand years our descendants may well inhabit every star system within two hundred light years of our planet. Within four million years we will have settled the entire galaxy if we find that we are the only intelligent species. However, if even one ET civilisation has preceded us then its colonies should be everywhere that we look.

By January 2000, astronomers had discovered 29 worlds orbiting sun-like stars and expected to

announce the discovery of a new world every month or so. By 2007 there have been over a hundred planets detected around nearby stars. These are scattered around us from only 15 light years away in the constellation of Aquarius to 192 light years away in the constellation of Vulpecula.

The closest known planet beyond our solar system is a water-cloud world like Jupiter or Saturn, 670 times the mass of Earth at a temperature of -136 degrees Fahrenheit, orbiting Gliese 876, a red dwarf star. The furthest known planet is another water-cloud world, HD177830, 388 times the mass of Earth at a temperature of 192 degrees Fahrenheit. Both worlds orbit within the habitable zone. These and other known worlds orbit their star as a lone giant gas planet though unobserved smaller rocky planets might also occur.

One solar system of three giant gas planets orbiting their star, Upsilon Andromedae, a star slightly hotter than our own and 44 light years from us has also been found. All the planets found so far are huge gas worlds like Jupiter and Saturn and range in size from 130 times the mass of the Earth to 3,500 times the mass of the Earth. However, unlike our solar system where small rocky planets orbit near or within the habitable zone and giant gas planets orbit in the frigid outer zone, all the other observable worlds have gas giants orbiting close to their star often within the habitable zone. With such giant worlds so close to their star there is little room for small rocky planets, like Mercury, Venus, Earth and Mars, to orbit within the habitable zone.

Some of the newly discovered planets have been named Roasters because they orbit from 3.9 million miles to 6.9 million miles from their star and consequently have temperatures of up to 2,500 degrees Fahrenheit, probably with clouds of silicate raining iron droplets onto the surface. Some of them are Clear Sky planets orbiting from 8.2 million miles to 77 million miles from their star with temperatures from 170 up to 900 degrees Fahrenheit. These blue worlds have clear to hazy skies of sulphides and chlorides.

The other known planets outside of our own solar system are Water-Cloud worlds, the coldest of the known planets and like our own giant gas planets. Large moons orbiting these giant worlds might be habitable. 47 Ursae Majoris in the constellation Ursa Major 46 light years from Earth, orbits 200 million miles from its star, is 760 times the size of the Earth and has a temperature of -118 degrees Fahrenheit. Because it is within the habitable zone its moons may include a living world or two and, consequently, are a target of a search for radio emissions.

The search for extraterrestrial intelligence (SETI) began with the MIT physicists Giuseppe Cocconi and Philip Morrison who published a paper in the scientific journal Nature in 1959 that discussed the possibility of searching for ET's by radio astronomy. The very next year the actual search had begun. Frank D. Drake and his colleagues at the National Radio Astronomy Observatory in Green Bank, West Virginia listened for radio signals from two nearby solitary sun-like stars, Tau Ceti and Epsilon Eridani, that are twelve light years away and visible in the southern sky. Following the advice of Cocconi and Morrison they tuned their radio transmitters to frequencies near 1420 MHz which produces a steady hiss made by interstellar hydrogen in the hope that ET's would use the hydrogen band as a marker or sign post. Nothing unusual was heard.

From that time onwards radio astronomers all over the world have searched the stars for radio signals emanating from extraterrestrial civilisations. NASA set up its own program using the antennas of the Deep Space Network in a systematic scan of the whole sky while the world's largest radio dishes targeted a thousand-nearby sun-like star systems. Nothing positive was heard and the NASA program was curtailed but the search goes on around the world. Project Phoenix uses the 210-foot Parkes radio telescope in Australia and the 140-foot radio telescope in Green Bank, West Virginia.

The Big Ear project at Ohio State University finally picked up a very powerful signal on 15 August 1977 and astronomer Dr Jerry R. Ehman on seeing this remarkable string of code wrote 'Wow!' beside it on the original computer printout. This signal has never been heard from again – even though astronomers have looked for it dozens of times.

Now the SETI Institute is gearing up to look for it, uses the Allen Telescope Array, dozens of six-metre-wide (20-foot-wide) radio dishes in California. If it was intelligent communication coming from a planetary civilisation it may still be there. If it was coming from an alien spacecraft in flight between destinations, there may now be empty space from where the signal originated. It is also very possible that these extraterrestrials usually cloak all their communications and the signal could have resulted from an accidental leak.

The searches have so far covered only a small fraction of the combination of target stars, radio frequencies, power levels and temporal coverage that must be scanned before we can draw a definitive conclusion. Nevertheless, we can draw some preliminary conclusions concerning the number and technological sophistication of presumed ET civilisations.

We know that our own civilisation is producing waste heat, a result of the second law of thermodynamics that would show up at infrared wavelengths for anyone out in space looking in our direction. They would also pick up some of our radio signals if they were not too far away. Scientists were expecting to find that advanced civilisations were quite common, and we would therefore pick up evidence for their existence at infrared wavelengths and from their radio signals. Jun Jugaku and his colleagues at the Research Institute of Civilisation in Japan have searched the infrared wavelengths and have reported that there is no sign of civilisations producing excess heat out to about 80 light-years from our world.

Russian SETI pioneer Nikolai S. Kardashev developed an Effective Isotropic Radiated Power (ERIP) calibration to measure expected power transmissions that may come from alien civilisations. The Arecibo radio telescope in Puerto Rico is the most powerful radio transmitter that we have, and it could be used to transmit signals to another civilisation out in space. If the energy output at the Arecibo radio telescope was the best that our civilisation could produce, then it was decided that a more advanced civilisation could transmit signals with a power equivalent to all the sunlight striking an Earth-like planet. Such a signal, if detected, would be designated as coming from a Type I Civilisation. On this scale, our civilisation is designated as a Type 0.7 Civilisation.

It was then argued that an even more advanced civilisation could harness the entire power output of a sun-like star to transmit signals and such a signal would be designated as a Type II Civilisation. The most advanced civilisations could probably harness the entire power output of a galaxy to send signals through space and so would be designated as Type III Civilisations.

The SETI studies so far have shown that there are no Type 0.7 Civilisations, transmitting radio signals, out to 50 light-years from our world and it is unlikely that there are any within 4000 light-years. There is also no sign of Type II or Type III Civilisations within the galaxy.

During a dedication ceremony for an upgrade of the Arecibo radio telescope in 1974 the first ever radio transmission was beamed from our planet towards a group of stars. Depicting a simple representation of our biochemistry and our solar system the message was beamed at globular star cluster M13 that is 21,000 light years away. Beyond this one event we are not purposely transmitting powerful radio signals out into space though we are unintentionally transmitting radar signals used for the mapping of our nearby planets. For the last fifty years we have been unintentionally transmitting high frequency television broadcasts beyond our solar system and

the earliest of these radio signals are now reaching star systems fifty light years away. At that distance ET's could watch our broadcasts though they would need 3000 acres of rooftop-style antennas to get a good picture.

It is possible that there could be millions of civilisations out there that are at our level of development, that we have not yet been able to detect, widely spaced throughout the stars and galaxies, who are not purposely transmitting powerful radio signals out into space. Most may be too far away for their signals to ever reach us. They may also regard that as a dangerous thing to do in case it attracted the attention of aggressive aliens.

There could also be large numbers of Type I Civilisations scattered through the galaxies that we have not yet been able to detect. They could be using frequencies that we have not examined, or they could be transmitting sporadically or using more advanced or cloaked methods of communication. SETI programs have logged numerous 'extra statistical events' but there is no way of telling whether these came from intermittent ET broadcasts or from interceding radio waves from mobile phones on Earth.

Our examination of the nearby solar systems and their worlds, that are large enough and close enough to be observed, have not revealed any planets capable of supporting life. Nor have we been able to detect any sign of waste heat that would show up at infrared wavelengths, or intentional radio transmissions from intelligent extraterrestrial civilisations. There is also no hard evidence available to the general public that ET has ever visited our planet.

There is a lot of circumstantial evidence that a secret military-industrial group has recovered crashed spacecraft and occupants and hidden them from the world's scientists and the public while they take advantage of the alien technology for their own use. In the public arena, after all our effort in a great array of scientific fields, we have found not the slightest shred of evidence that life exists anywhere else but here.

Taking the public scientific knowledge of no evidence for alien life forms, does this mean that there is little chance of other life forms inhabiting worlds out there somewhere? Nobel prize-winning biochemist Christian de Duve stated, "Life is almost bound to arise, wherever physical conditions are similar to those that prevailed on our planet some four billion years ago."

The age of our planet has been dated at 4.6 billion years and J. William Schopf of the University of California announced in 1993 that the oldest direct evidence we have for life on Earth consists of fossilised bacteria in 3.5-billion-year-old rocks from Western Australia. Because these were complex life forms that must have had a very long evolutionary history it appears that life established itself on our planet as soon as environmental conditions had stabilised. Sure enough, newly found evidence in 1996 showed that the oldest known surviving rocks on the planet, dated at 3.9- billion-years-old, also hold fossil remains of primitive life.

The universe is composed of the same elements and under the same forces of nature here as well as everywhere else. If reproducing universal matter in the form of bacteria spread across our planet as soon as it solidified, all solid-rock planets, like Earth and Mars, at a suitable distance from their sun-like star, and there are billions of such stars, should also be swarming with bacteria.

Of course, this does not prove that life exists anywhere else in the universe. But which of the following two possibilities would have been more remarkable when you were first old enough to look around? The first possibility is that you found that you were the only human on the planet, or second, that there were many more like yourself just down the street? This is the reason that scientists are positive that the universe is filled with life. It is a point of view among astronomical

researchers that is referred to as the Principle of Mediocrity. Anything that is unique is much more remarkable than anything that is common and ordinary.

Originally, we did indeed believe that we were unique and at the centre of the universe with the sun, planets and stars all orbiting around us. But with technological progress we soon found that our planet revolved around the sun with several other planets. Then we found that there were half a trillion other suns all spinning around together in what has been named the Milky Way Galaxy and it was further discovered that we were located close to its edge.

To make matters worse for our original concept of utter uniqueness, we then noticed that there were another fifty billion other galaxies of stars containing, approximately, ten thousand billion, billion, billion suns, probably most with planets. If our physical situation is ordinary, then it is very likely that our biological situation is ordinary. How mediocre can one get?

However, a mediocre universe does not mean that all its constituent parts are not special. We have over six billion people on our planet and yet every one of them is different. Scientists believe that no two life forms in the universe would be identical; such is the complexity of this ordinary universe. Over many hundreds of millions of years of drifting continents and changing climates, competitive pressure has been responsible for the evolution of an incredibly diverse, complex and highly adaptive, array of plants and animals that we share our world with today.

The same should occur on any planet where the conditions for life are stable. Simple reproducing organisms will begin living together in symbiosis to form ever more complex organisms. Organisms that can absorb energy from their star will dominate every planet. Feeding on sunlight means that it is a good idea to remain relatively stationary and there is no need to develop intelligence, so clever plant-like photosynthesising organisms are not likely to be common.

Something will evolve to take advantage of all these plant-like organisms, a food resource just standing around. Such an organism must develop the ability to take notice of the local environment and so will require the addition of a brain and its sense organs along with appendages that can propel the organism from one food resource to another.

Intense competition between species on other planets will eventually produce ecosystems similar in many respects to our own. Organisms that take energy from the sun will be very similar to our plants whilst organisms that feed on plants or feed on each other will be very similar to our animals. Competition may eventually produce large-brained agile organisms, what we would refer to as clever animals that can use tools. Tool using animals may eventually produce civilisations, advanced technology and space travel.

If they exist, intelligent extraterrestrial life forms will have to be warm-blooded to effectively compete with the other life forms that would share their planet. They will have to have an internal skeleton to hold the body up. An animal with an external skeleton, like an insect, is only successful if it is small and a small animal will have difficulty developing a large brain. They will exist within a certain size range, too small and the body will lose heat too quickly and it will have to spend most of its time eating. Too large and it will not be very agile.

Carnivorous species needs to outwit their prey species and so must increase their brain complexity to do so. Herbivorous species may also have to develop more complex brains to understand the behaviour of their predators to survive long enough to reproduce. A large and complex brain is very energy demanding and requires large amounts of nutrients to operate which means that all highly intelligent species may need to be at least partly carnivorous.

To develop technology, it will have to have lots of free time, as carnivores do. If it must spend

most of its time eating, as herbivores do, then it is unlikely that it will have time to develop a technology. It will have to be a land animal with opposable appendages that can handle tools and it will probably need to be bipedal so that its hands are free, and its head is high above the ground so that it has a good view of its surroundings. It is very likely that it will also have swung below the branches of trees or brachiating so that it has developed very flexible shoulders that allow it to raise its arms over its head. If it cannot do that then it will be very difficult for it to throw weapons or hunting implements or to build structures.

It will have to have organs that can gather information about its environment, two eyes that can give it depth perception; two ears that will help it locate the source of a sound and a sense of smell. These will all have to be located directly adjacent to the brain to minimise reaction time. The animal will have to be supremely efficient with no extra number of sensing organs or appendages that will overload its brain with unnecessary information. It will also have emotions and empathy that will motivate it to reproduce, care for its progeny, to defend itself and to comprehend the feelings of others so that it can dwell within a complex society.

Beyond these rather simple requirements it is not easy to imagine what extraterrestrials would look like or how they would behave. However, we do have one sample to study and that, of course, is ourselves. If our physical and biological systems are mediocre, then we ourselves may also be mediocre. After all, we are the products of very ordinary universal conditions.

Convergent evolution is a very common and ordinary aspect of life on this planet. As organisms constantly compete and adapt to the changing circumstances of their world, they are forced to become super efficient in their life styles, which over time moulds their bodies and minds for ultimate survival. Thus, animals that are completely unrelated to one another end up looking very similar, have similar behaviour and survival strategies.

The history of life on this planet is replete with convergent evolution. Early in the history of life on this planet different species of bacteria developed photosynthesis (the ability to absorb energy directly from sunlight) and included violet bacteria, cyanobacteria and the ancestors of green plants. Many bacterial species developed evolutionary symbiosis, where several disparate organisms combined to create a much more complex organism such as the original eukaryote or nucleated cell. This ability for smaller organisms to link up and eventually create a larger organism is responsible for all the animals and plants that now make up the ecosystems of our planet. A plant is composed of thirty different varieties of cells and a human is composed of two hundred different varieties of cells.

The lichens that encrust rocks and tree trunks are algae and fungus living together. All plants have specific species of fungus living in their roots that draw moisture and nutrients out of the soil for the plants. Corals and giant clams are animals that have tiny plants, algae, living in their bodies that photosynthesise and supply the animals with sunlight-derived energy. All herbivores, from extinct giant sauropod dinosaurs to modern cattle, deer, antelope, koalas and termites have symbiont organisms in their guts that digest the plant material for them.

Eyes have evolved in a whole array of completely different organisms and the eyes of invertebrates, such as molluscs, insects, arachnids, crustaceans and sea stars, are quite different to the eyes of vertebrates such as fish, amphibians, reptiles, birds and mammals. The ancestors of insects, teleost fish, reptiles, birds and bats developed aerial flight. Intelligence has evolved in some of the invertebrates, such as in octopuses, cuttlefishes and squids. The vertebrates with elephants, horses and pigs scoring well and with carnivores, whales and dolphins and the primates topping the list have developed much higher intelligence.

Most active marine organisms have a streamlined shape, flying organisms have light weight

bodies, organisms living their entire lives in the total darkness of caves will lose their eyes and running organisms will have elongated legs. Australia, isolated from the rest of the world for many millions of years, has many mammals that closely resemble those of the other continents though they are utterly unrelated. These include such different animals as marsupial 'moles' (Notoryctidae), marsupial 'shrews, weasels, civets and cats' (Dasyuridae), marsupial 'wolves' (Thylacinidae), marsupial 'bears' (Vombatoidea) and marsupial 'primates and flying squirrels' (Phalangerioidea).

Although we regard ourselves as unique compared to the other organisms on our planet, every aspect of our physical features, our biology and our behaviour is the result of the forces of nature acting upon us. The universe has created us as we now stand. So, what would the inhabitants of other worlds look like?

For a start, planets larger or smaller than our own world, with stronger or lighter fields of gravity, may not produce anything more than bacteria. A small planet like Mars may be unable to retain its atmosphere, whilst a larger planet may be ravaged by more powerful weather conditions. Planets that are too cold or too hot or too close to a giant gas planet may also be unable to produce anything more complex than bacteria. Planets perfect for life, like our own wonderful world, may be rare, but with billions of opportunities, there should be other similar worlds out there somewhere, though perhaps there may be only one or two in an entire galaxy.

The physical features and behaviour of aliens portrayed in science fiction movies are almost always inefficient. Nature does not produce bizarre monsters with external brains and blood vessels; massive armour plating, excessive numbers of teeth or strange blob-like shapes. All these may look impressive in an entertaining fictional film, but back on their home world they would be quickly out-competed by streamlined and efficient competitors.

Natural forces will have shaped the inhabitants of other worlds to be efficient, graceful and harmonious members of complex ecosystems. They may well have followed quite different evolutionary lines and because of chance events they would have a different evolutionary history and may look quite different to what we observe on this planet.

The evolutionary history of this planet has been thoroughly diverted by chance happenings with massive extinction events primarily caused by asteroid and comet impacts and gigantic volcanic eruptions. Mass extinctions have occurred throughout the history of life on this planet. At the end of the Permian epoch 250 million years ago mammal-like reptiles that had ruled for 70 million years inhabited the planet. They may have ushered in the age of mammals if it wasn't for the asteroid impact that exterminated most of their species and gave the dinosaurs the opportunity to dominate. The dinosaurs ruled for the next 160 million years and may well have continued their domination if it wasn't for another asteroid impact event that gave the mammals a second chance.

The study of our genetic make up shows that 98.6% of our genes are identical with chimpanzee genes, the other 1.4% are mutated or evolved genes that have produced highly intelligent, bipedal, partly aquatic, puny-haired chimpanzees. Would such organisms, as ourselves, have evolved without the chance events that mark our evolutionary history? Or would the play of natural forces eventually create an efficient organism, such as us, no matter what chance events occurred along the way?

Because of technology we have been forced to accept that our planet and our solar system is not unique and at the centre of the universe. We are a mediocre part of a much larger universe. But because technology has not been able to show us what inhabits all the other suitable planets in the universe, we have been able to continue to view ourselves as unique and at the centre of the universe. Surely nothing could look like us, we are humans, and aliens would have to look

different.

What we forget is that we are the aliens to every other potentially occurring life form throughout the universe. We have been forced to apply the Principle of Mediocrity to our physical situation which means that we will also need to apply the same principle to ourselves in every other possible way as well. Scientific principles do not suddenly stop midway through the universe; they permeate every possible aspect of reality.

When we wonder if humans are unique in the universe, we really must wonder whether intelligent, warm blooded, bipedal, highly efficient organisms, that can both climb and swim, only ever evolved once. Things that climb trees and end up looking like monkeys and apes and that progress to end up looking like humans, as has occurred here, are a natural consequence of competition and adaptation. Given the right conditions and a relatively stable time period of billions of years, bacteria may always evolve into something that closely resembles human beings. Most extraterrestrials would have to be as mediocre as we are, and convergent evolution may well mean that we are all very similar indeed.

Scientists have been aware of all this for a long time and in 1950 nuclear physicist Enrico Fermi asked "If extraterrestrials are commonplace, where are they? Should their presence not be obvious?" This question has become known as the Fermi Paradox.

Paul Horowitz of Harvard University has stated that from his studies it could be estimated that only one in a million solar-type stars are likely to produce a technologically advanced species. He would expect that at least one radio-transmitting civilisation would now exist within one thousand light years of Earth and that a thousand such civilisations should currently inhabit our galaxy. If we multiply that by the fifty billion galaxies estimated to be in existence that gives us a glimpse of just how much intelligent life may share our universe.

Our galaxy is approximately twelve billion years old and our planet is about four billion years old. If there are a thousand civilisations in existence in our galaxy how long have, they existed for? How many extraterrestrial civilisations have died out? If such civilisations only last a thousand years a total of twelve billion civilisations would have arisen and collapsed to give us a figure of a thousand civilisations surviving at the present time. It is these incredibly high figures that scientists juggle in attempting to predict how many alien civilisations may be out there.

The galaxy is full of ancient sun-like stars where on suitable planets intelligent life could have arisen long before our planet was even inhabitable. It has taken four billion years for intelligent life to arise on our planet after it was habitable. Alien civilisations have had plenty of time to explore the galaxy and colonise the planets. So why is it that this planet has not been colonised? There were endless opportunities for the colonisation of our planet before any sign of intelligent life arose. Why has there been no interference during the lengthy evolution of life on the planet?

Some scientists have speculated that our planet was seeded with life four billion years ago and has been left alone since then. But why seed the planet with such primitive life forms? Life must have sprung up naturally on other planets anyway so that intelligent beings could arise to seed other planets. Beside that, we know that the surface of a planet has a natural ability to reproduce itself in the form of crystallisation. Matter automatically reproduces itself, creating endless perfect copies of it.

The Glasgow chemist Graham Cairns-Smith was the first to propose the 'inorganic mineral' theory which states that the original replicators were crystals of inorganic materials such as those found in clays and mud. So, the precursors of replicating organic molecules may have been the primeval clays, the matter of the planet itself, for ordinary clay contains two basic properties that are essential

for life. These are the capacities to store and transfer energy. An examination of ceramic clay shows that as the clay crystal form, faults and mistakes commonly occur, and these are repeated until faulty and unstable molecular associations trap energy and holds it for thousands of years.

These defects in the clay microstructure act as sites for storing molecular information necessary to direct the chemical reactions that eventually occur during radioactive decay. These become chemical factories processing raw materials into more complex molecules essential for the organization of proto-organisms.

Van Olphen, in an introduction to clay colloid chemistry has this to say about them. "Clays are extraordinary, layered crystal structures which have, built into them, what amounts almost to an innate tendency to evolve." Life scientist Dr. Lyall Watson believes that these crystalline structures were essential in the evolution of life on this planet. He states "Crystals don't reproduce, they replicate. They produce exact copies of themselves carrying on whatever information they happen to have picked up. They are stable, they replicate with accuracy; but if any change is wrought in them by an environmental pressure, they copy this imperfection as well, incorporating it faithfully into their memories."

The American chemist Armin Weiss has proven that mica clays can build up patterns of organic molecules between their silicate layers. He has identified over eight thousand derivatives in which the clays, acting as templates, have induced ammonium ions and alcohols to solidify into organic components.

A. G. Cairns-Smith, in his paper entitled 'Synthetic Life for Industry', points out that "Reactions occurring in such an array containing suitable monomers could give rise to polymers with a genetically controlled configuration, out of which secondary control structures, membranes and other cell structure could be formed."

Dr. Watson contributes further information on this most important realisation as to the very stirrings of life on this planet. He states, "As more and more of the information in the silicates was transformed in the organic molecules, the clay would cease to control and take on a more passive role as a protective clamp.... Protein, which we tend to regard as the be-all of life may be only a make shift material that was chosen in the first place just because amino acids happened to be around... they may have inherited their most important attribute from ancestral clay.

Life is not in protein, but in its ability to recognise other molecules and to hold ordinary atoms in an extraordinarily precise way. Which, if the crystal theory is correct, is precisely what clay learned to do, and what it taught to the first complex replicating molecules cradled in the folds of its bed. It begins to look as though the very first organisms in our life system was the earth itself, in whose body developed a virus, a new metabolism drawn from ingredients in the environment that eventually learned how to live in greater independence of its host. The whole concept of Mother Earth shifts from symbol and myth to a dawning realisation that we live on a parent, not a planet.

The appeal of crystals as primitive genes is that they already possess the quality of replication and, given this, the gradual development of nucleic acids from simple organic substances under their control becomes a much simpler and more logical construct. And simple solutions tend to be the right ones, the ones most likely to have been chosen by evolution from the comparatively simple set of conditions that existed on the primitive earth."

Support for this theory for the very beginnings of a living planet comes from the discovery of the most primitive of all life forms; a minute living crystal called a Prion. These organisms are even more primitive and simple than a virus, are probably indestructible and have recently begun to attack and kill humans. They are the 'brain-eating bugs' that cause Creutzfeldt-Jacob Disease in

humans and spongiform encephalopathy that causes mad cow disease that threatens the British cattle industry.

A leading Queensland geneticist, John Cox, who has worked with cattle as a reproductive biology scientist in the U.K. and studied Prions, describes them as a strand of DNA more like a mineral than a virus.

“When you look at a virus under a microscope it is moving, but prions just sit there and do nothing until they are activated by being introduced into the right environment. They look like a metal or a crystal, which grows and then a piece breaks off and is transported to another site. A virus can live only within a cell and once there is no virus growing you have wiped it out. But a prion can live outside a cell. But like viruses they multiply and kill the cells they are in.

Dr. Watson describes viruses as follows. “Put a thin overcoat, a jacket of protein, onto a strand of DNA and you have a virus, the simplest almost living thing we can imagine.” Crystalline substances prove that universal matter can organise itself, for they arise spontaneously and replicate themselves in a stable manner to create regular geometric forms. Clays are the most abundant and changeable of these structures and could have been responsible for the stirring of life on the planet without ET's needing to interfere.

Some people have expressed beliefs that humans may have originated on some other planet and that we are the products of such a colonisation. However, recent studies of the human genome have shown that we are closely related to all the other life forms on this planet. Medical investigation has shown that humans are not single entities at all but are populations of symbiotic organisms as will be looked at shortly.

There could be the possibility that extraterrestrials have created our habitat when our solar system was forming. With super advanced technology they could have designed and built our Earth and the Moon from material at hand and tilted our planet so that life could evolve. It is also possible that they introduced viruses and bacteria to speed the process up.

They don't seem to have worried at all about the direction life was taking or to safeguard it from massive extinction events that took millions of years to recover from. There is also the possibility that they have more recently meddled with our DNA to produce modern humans and to instruct early settlements on how to develop complex societies and civilisations, as alluded to in some of humanity's earliest literature. However, all of this could also have occurred entirely without the need of outside help.

One of the great fallacies concerning humanity is that we are somehow separate from the ecosystems that support us. Such a thing could never be the case for any organism. Although we are rarely aware of the fact, humanity is but a part of the recycling and reproducing ecosystems of the planet. It is the surface of the planet that is alive, and we are just one of its many aspects.

No doubt it will be a shock to discover that when you weigh yourself only 10% of that weight is human. The other 90% is unrelated microbes that have utterly colonised almost every part of your body and are essential for your survival. What looks like a human from a distance looks more like just another ecosystem close up.

There are ten times as many microbial cells as human cells in the average human. We are more microbe than mammal, a veritable super-organism. The total number of microbial genes in the human body outnumbers human genes by up to 1000 to 1. Without these unrelated, almost alien microbes we wouldn't be human.

The only true sterile humans are unborn babies. As soon as we are born, we are infected and colonised by vast numbers of the microbes that dominate the planet. The first microbes that we encounter will be those in our mother's birth canal, respiratory tract and skin. Only some of these will be successful in colonising our baby but the favourable conditions that they set up open the door for successive waves of microbes pouring in from other people, animals, the home and everything that the baby encounters.

Only a few parts of the human body can resist this invasion and remain free of these microbes, the brain, kidneys, blood and lungs. Stable microbial communities colonise all of the rest of the body where together we happily co-exist for the rest of our lives. We depend on them for our survival.

Without our normal microbes we could not perform many of our bodily functions. These viruses, fungi, protozoans and bacteria provide us with a vital shield against more unpleasant disease-causing microbes. In the stable, established ecological community that is our body, every possible niche is occupied so that pathogens must compete with the incumbent microbes to gain a foothold.

At a given anatomical site, the core of the community does not vary much across all humans – regardless of climate, diet, age or lifestyle. These microbes have evolved with us over millennia, passing from generation to generation. However, the microbiome on the fringes of each human is constantly shifting in response to environmental conditions.

The major populations of microbes found on the skin form a bacterial core of certain genera and species that can change over time for each person. However, there are many minor populations of species, which bloom into a major population depending on environmental circumstances. The microbial community on the skin is extremely variable and it can change each time one washes with soaps. Some of these skin dwellers cause such problems as athlete's foot, impetigo, dandruff and acne.

A kilogram in weight of thousands of different species of microbes inhabits the human gut. Without them we would not be able to digest certain foods, metabolise drugs, detoxify noxious compounds or make essential vitamins. An ancient single-celled group of organisms called Archaea consume hydrogen and produce methane that gives us flatulence.

The gut flora changes with age and diet. Populations of the two main phyla of bacteria in the colon, the Bacteroidetes and the Firmicutes, fluctuate with the kind of food consumed. The Bacteroidetes dominate the gut if a person normally consumes low-calorie food. However, if a person normally consumes high-calorie food the Firmicutes dominate and because they have an increased ability to absorb nutrients from the gut, they are directly responsible for human obesity.

The overall composition of the human microbiome also traces our species long co-evolution with its microbes, reflecting changes in the way we have lived over millennia. Of interest is the fact that each human carries a unique microbial fingerprint providing an historical record that can be used to map the origin of one's ancient ancestors. It is no longer necessary to only study fossil human remains and our genetic makeup to understand our origin.

For instance, Page Caufield and colleagues of the New York University College of Dentistry have studied the different strains of the mouth-inhabiting bacterium *Streptococcus mutans* that is now providing us with evidence of our ancestor's migration across the world from their origins in Africa. *S. mutans* is almost exclusively transmitted from mother to child and once a strain is in place, no naturally evolved rival can replace it. The various strains that have travelled with the different human populations have co-evolved with them over the millennia.

Caufield's team used DNA markers to differentiate between strains and then traced their evolution back to an original African population. The trail follows an important exodus to Asia, and branching off this, several very closely related strains that co-evolved with Caucasians. Caufield suspects that Caucasians might have been founded by a splinter group of Asians who retraced their footprints back to Europe. He states "Because there was virtually no variation in the Caucasian strain of *S. mutans*, we speculate that that particular group of humans originated from a very small founder population. The strains strongly resemble one of the Asian strains, suggesting a relationship."

We now know that the most ancient African 1 strains of *S. mutans*, AF199, LM7, AA699 and AA545 gave rise to the African 2 strains AA 222, AA37, AA140, AA174, AA138, AA855, BR15, AM223 and SW114. After we migrated out of Africa into Asia, the Asian strains of *S. mutans* CH620, CH638, CH639, JP-4, JP9-4, JP9-1 JP85-5 and CH5A appeared. A small population of the pale-skinned Asians, with their adaptation to the northern climate, migrated into Europe to become Caucasians and the Caucasian strains of *S. mutans* CH830, CA96, CA143, CA101, CA111, CA114 and finally VA318 appeared.

In May 2007 the US National Institute of Health approved a five-year plan to investigate the human microbiome – the entire microbial content of the human body. We are now only just beginning to understand what it is to be human. If we do not understand exactly what we are, there is little chance of us understanding extraterrestrials.

Like humans these intelligent, technologically-adapted space faring beings must have originally existed as populations of symbiotic organisms living together to produce single individuals like ourselves. Perhaps they still do and if they are colonised with their own native microbes, as we are, it would not be a good idea to get too close to one another. Every time we speak, we release thousands of bacteria-laden droplets of moisture into the air. We would each have to be completely immune to each other's native microbes to survive the contact.

Perhaps the extraterrestrials have eliminated all their attendant microbes and now live in completely sterile environments. ETs are often described as rather small, slender, weak-limbed beings with tiny mouths and simple guts that prefer to absorb food through their skins. Perhaps this is a result of having eliminated the 90% of their body weight that their microbes would have originally made up. They may now be completely unable to exist in any normal planetary habitat swarming with ecosystems of multiple life forms as we do. Detailed of their space craft, bases and planetary civilizations, as described by different contactees, are all very simple, sterile environments.

One of the enormous problems to be encountered when trying to colonise a living planet, or even to land on such a planet, is that of microscopic organisms. With the first breath of air that an ET takes on any planet, vast numbers of minute organisms would be inhaled. The immune system of such an intruder would be unable to recognise these new organisms, which would immediately begin feeding on the internal organs of the intruder.

To make matters worse, the microscopic organisms that the ET is composed of, and is associated with, would immediately begin to infect a planet with no experience of such organisms. Terrible diseases have decimated human and animal populations across the globe on many occasions in the past when we have colonised new continents. Imagine how much worse the consequences would be if an entirely alien organism manages to interact with our enclosed global environment. The fact that there have been no obvious biological influences, along with a lack of chemical traces or physical artefacts, indicates to most researchers that we have never been intruded upon. However, it is possible that even these formidable problems can be overcome.

Some researchers suggest that perhaps ET civilisations are actively colonising the galaxy and that they are still on their way and haven't yet reached us. Other researchers propose that extraterrestrials are active in our locality but have not interfered with us to any noticeable extent.

At this stage in our technological development the only way that we can determine whether life exists beyond our planet is to watch out for any signs of intelligent life forms visiting us. A living planet like the Earth appears to be so unusual, at least as far as we have been able to detect that it would immediately draw the attention of any space travelling life forms.

A lack of information concerning the existence of extraterrestrial visitors to our planet naturally convinces most people that if there is any other intelligent life in the universe it is liable to be so far away in space and time that we may never even learn of its existence. But is there really a lack of information or is it simply withheld from common knowledge? People have reported many unidentified flying objects, but the consensus has always been that these are misidentifications of natural phenomena. Surely, we would be told if flying saucers are real.

If we were a perfectly harmonious global society, the news of the arrival of extraterrestrial craft would be disseminated throughout the population so that we could determine the most appropriate response. But the universe is chaotic and dynamic. Consequently, humanity is deeply divided by the consequences of history and topography.

UFOs are usually described as disc shaped, triangular, spheres or as elongated cigar-shaped objects that range in size from that of a car to that of an aircraft carrier or larger. They all can travel at incredibly fast speeds without making a sound. They can hover silently at any distance above the ground and can accelerate so rapidly that they virtually disappear within the blink of an eye. Of interest is that they appear to have very inexpensive energy consumption and leave almost no evidence of their passage.

Examining the technology from such a craft with our relatively advanced scientific ability would fast track our own technological development. No need to spend time and resources experimenting with and exploring a diversity of potential technological directions when we have the perfect result in our hands. The information gleaned from a study of extraterrestrials and their craft would be of extreme value to any organization that could get their hands on it. It would provide a massive advantage to any corporation or government.

The crafts themselves could be used as the perfect intelligence gathering or battle platform. Such a craft would be much more valuable than even the most effective bomb. Any nation that can access such craft will have little trouble ruling the world. Little wonder then that all knowledge of the existence of such a technology would be classed under the highest possible secrecy classification.

The only organizations with the resources to actively study the unidentified flying object phenomena are the defence establishments of our nations. To determine whether there are extraterrestrials visiting our planet the obvious search for evidence would be within the memorandums of the military establishment who must respond to every potential threat. UFO researchers have successfully uncovered, via the USA Freedom of Information Act, all kinds of military documents mentioning extraterrestrials and their craft.

Secrets always leak out eventually. Even the most carefully guarded secret is liable to be released. This usually occurs during the earliest stages of a discovery, before the full impact is comprehended and then by individuals growing old, retiring from active duty and feeling the need to pass on the information to someone else before they die. This certainly has occurred and

is continuing to occur.

In 1959 the great space pioneer Dr. Wernher Von Braun commenting on the deflection from orbit of the US Juno 2 rocket stated: "We find ourselves faced by powers which are far stronger than we had hitherto assumed, and whose base is at present unknown to us. More I cannot say at present. We are now engaged in entering into closer contact with those powers, and in six- or nine-months' time it may be possible to speak with more precision on the matter."

Another great pioneer in astronautics, Dr. Herman Oberth, who worked with Dr. Wernher Von Braun at the US Army Ballistic Missile Agency and at NASA's George C. Marshall Space Flight Centre, commented on his hypothesis for UFO propulsion as follows:

"... today we cannot produce machines that fly as UFOs do. They are flying by means of artificial fields of gravity. This would explain the sudden changes of direction.... This hypothesis would also explain the piling up of these disks into a cylinder or cigar-shaped mother ship upon leaving the earth, because in this fashion only one field of gravity would be required for all disks.

They produce high-tension electric charges in order to push the air out of their path... and strong magnetic fields to influence the ionised air at higher altitudes.... This would explain their luminosity.... Secondly, it would explain the noiselessness of UFO flight. Finally, this assumption also explains the strong electrical and magnetic effects sometimes, but not always, observed in the vicinity of UFOs."

For such a leading scientist of his time to formulate such a hypothesis means that a wealth of observational data was available to him. And not just observational data but hands on experience as well when we recall an earlier statement that he made: "We cannot take the credit for our record advancement in certain scientific fields alone; we have been helped." When asked by whom, he replied, "the people of other worlds."

It is most unlikely that these top scientists of their day were crackpots with fanciful beliefs of aliens from outer space. Here was the pivotal statement that could have changed the course of human history alerting the world to the fact that contact had been made with another intelligent species that had already mastered the art of space-travelling just as we were about to enter that field of endeavour. If made today every media outlet would pick up such a statement. But in the late 1950's, with new kinds of kitchen and laundry labour-saving gadgets, exciting new forms of music, sex, fashion and other innovations, that had more appeal to the down-to-earth minds of the time, it meant little to the population and the news was quickly forgotten.

The defence and transport industries, on the other hand, would have been very interested. Forty years of tinkering with alien technology must have produced results. So, it should not be unexpected that retiring US National Security Agency personnel should be prepared to alert humanity to these latest developments.

A behavioural scientist, Dr. Richard Boylan, has recently published information supplied by such a retiree that confirms what defence industry 'black projects' worker Edgar Fouche detailed in his recent book *Alien Rapture*, that the US Government now has an operational fleet of antigravity aircraft and space craft. Based in the Wasatch Mountains east of Salt Lake City, Utah, the fleet includes small vehicles such as the Lockheed X-22A two-man antigravity disc, Northrop's discoid craft (Northrop also builds the B-2 Stealth bomber) and the XH-75D Shark antigravity helicopter, built by Teledyne Ryan Aeronautical Corporation of San Diego.

Larger vehicles include the Nautilus Spacecraft, manufactured by Boeing and EU's Airbus Industries and the TR3-B triangular antigravity re-entry vehicle. This latter craft was built by

Boeing and Lockheed-Martin at the Skunk Works plant at Palmdale, California and the first version went operational in 1962, though it was not until 1992 that the craft was finally perfected,

The 1962 version was illustrated in the November 2000 issue of Popular Mechanics, described as a Lenticular Re-entry Vehicle that is nuclear powered and of which three were used in the early hours of the Gulf War firing on targets using an electromagnetic-pulse / laser cannon. Whether all of this is fabrication only time will tell. Perhaps future children will have plastic models of these crafts hanging in their bedrooms.

So, the information is passed on and the collective global mind of humanity slowly becomes aware of the facts. Researchers from all over the world are gathering bits of information and the pieces of the secret puzzle begin to fit together. From this data we can begin to understand just how much intelligence is lurking in our neighbourhood for although the technology is fascinating, even more interesting is the biology behind the technology.

Three of the most important points to remember from the previous chapter are as follows.

Paul Horowitz of Harvard University has stated that from his studies it could be estimated that a thousand civilisations should currently inhabit our galaxy. Nuclear physicist Enrico Fermi asked, "If extraterrestrials are commonplace, where are they? Should their presence not be obvious?" Astronomers such as Michael H. Hart and Ian Crawford, radio astronomer Ronald N. Bracewell, engineer David Viewing and physicists such as Frank J. Tipler and Andrew J. Lepage have reconciled the apparent absence of extraterrestrials with the view that advanced civilisations are common. They agree that if even one ET civilisation has proceeded us then it will have only taken that species four million years to have settled the entire galaxy and its colonies should be everywhere that we look.

If scientists have agreed that the galaxy must have been colonised by now, then it almost certainly has. Whether our planet has been colonised can also be easily answered. If there had never been any reports of extraterrestrials or their craft throughout the known communicated human history then we could have plainly stated that "we are alone," or at least that no colonising extraterrestrials have reached our quadrant of space.

Unfortunately, from multiple cultures across the planet, both our ancient and modern history contains references to unexplained contact with remarkable beings and their highly advanced technology. Written history and works of art chronicle flying craft and strange occupants as far back as such records go. Different interpretations were attributed to the phenomena as human knowledge increased. Interestingly, the descriptions of these entities and their craft have changed little during several centuries

A 9th century Latin manuscript, *Liber contra insulam vulgi opinionem* describes the common belief of the people of France of sky ships. Gervase of Tilbury, an English chronicler of historical events recorded that in 1211 in the borough of Cloera, above St Kinarus church, the people attending Mass observed a sky ship with people on board. A Nuremberg broadsheet recorded and illustrated an incident that took place above that city on 14 April 1561 where large numbers of spheres emerged from cigar-shaped tubular craft and cross-shaped objects filled the sky. A broadsheet recorded and illustrated an incident that took place above the city of Basel in Switzerland in 1566 where large numbers of spheres were observed. On 4 November 1697 two glowing wheel-like spheres were recorded and illustrated in a broadsheet hovering over Hamburg, Germany. Many more observations were almost certainly made of unexplained flying objects that failed to be recorded.

With the arrival of the age of science UFO reports began appearing in scientific journals and *Scientific American* published a description by Professor A. C. Carnes of two unusual luminous objects hovering just to the north of the rising sun observed by students at Burritt College in Tennessee on 1 June 1853.

However, it has been primarily, newspaper accounts that have given subsequent generations the opportunity to hear tell of amazing sights in the sky with descriptions from the mouths of those that were fortunate enough to bear witness. Consequently, we know that the residents of Wilmington, Delaware, USA, observed a 60 m (200ft) long object travelling only 30 m (100 ft) above the city upon which it cast a pale blue light on 13 July 1860. Glowing red spheres emerged from the rear of the cylindrical craft and followed at 30 m intervals. The craft turned to the southeast, crossing the Delaware River and then continued east towards the horizon. This was reported in the *Wilmington Tribune* on 30 July 1860.

On 25 January 1878 a Texas newspaper, the Denison *Daily News*, reported that on 22 January, a farmer by the name of John Martin had observed a “large saucer” travelling swiftly across the sky. The article went on to conclude that “Mr Martin is a gentleman of undoubted veracity and this strange occurrence, if it was not a balloon, deserves the attention of our scientists.”

These cigar-shaped craft and saucers were regularly observed and recorded in newspapers across the United States in 1896 to 1897 and around the world during 1909 and were generally regarded as airships being test flown by unknown inventors. These reports were all regarded as single events and it was not until the journalist and travel writer Charles Fort began a systematic search through old newspapers and scientific journals that a pattern began to emerge. Fort was searching for interesting material on human behaviour and other aspects of nature that he could use for articles when he noticed repeated chronicles of unexplained aerial phenomena. He consequently published the first book on UFOs, *The Book of the Damned*, in 1919. He was the first person to understand that extraterrestrial beings do not have to hide their activities.

“It is not the conventional or respectable thing upon this earth to believe in visitors from other worlds, most of us could watch them for a week and declare that they were something else, and likely enough make things disagreeable for anybody who thought otherwise.”

The first apparent claim of contact with the entities that flew these craft occurred just at dusk on 25 November 1896 when Colonel H. G. Shaw and his companion Camille Spooner, travelling by horse and carriage toward Stockton, California, were confronted by three tall, thin figures that looked like graceful, delicate humans with large eyes, a small mouth, ears and small hands. They stood approximately 1.8 m (6 ft) tall and instead of hair, their skin was covered with soft downy fur. They spoke to one another with what sounded like a monotonous warbling chant. They each carried a bag with a nozzle, which they put to their mouth as if to breathe, and they each held a bright egg-shaped lamp. These illuminated a cigar-shaped craft that hovered above an adjacent river and the beings, swaying back and forth, sprang up and floated down into a door on the side of the ship, which then rose into the sky.

Similar incidents of chance encounters with mysterious beings associated with exotic aircraft were reported during the summer of 1901 at Bournebrook, England, in 1910 in Baltimore, Maryland, USA, in 1919 in Western Australia, in 1925 in La Mancha, Spain and in 1944 in Rochester, Pennsylvania.

Although further sightings were doubtless made of these visitors, little attention was given them until enigmatic aerial phenomena occurred during the Second World War when silvery discs and spheres of light began following military aircraft of both sides. They were regarded as secret weapons and the Allies referred to them as “foo fighters” named after a popular cartoon character of the time, Smokey Stover, who used to declare “where there’s foo, there’s fire,” (foo short for food on a smoky stove). Most of these observations were over Europe. In August 1942 U.S. Marines observed a flight of 150 silvery objects that had neither wings nor tail, their slightly wobbling flight creating a roaring sound as they travelled in formation over the Solomon Islands in the South Pacific.

Researchers generally agree that the modern history of UFO sightings began at three o’clock on 24 June 1947 when pilot Kenneth Arnold on a flight over the state of Washington, on the west coast of the USA, observed nine remarkable aircraft that darted around the Cascade Mountain peaks with a motion similar to that of a thrown saucer skipping across a water surface. The leading craft was at a higher elevation than the others and was crescent-shaped. The other craft were flat disks and they periodically flipped onto their sides in unison reflecting sunlight off their lateral surfaces. They were travelling at an estimated speed of between 1,900 to 2,700 kph (1,200 and 1,700 mph).

This sighting received widespread media release on the Associated Press wires and throughout the country other UFO incidents that had not previously been reported by the local press were suddenly discovered to be newsworthy. It was found that there had been 18 other sightings of unidentifiable aircraft during that same day, 24 June 1947, in the Pacific Northwest. A prospector, Fred M. Johnson had reported that his compass needle had suddenly begun to spin wildly and, looking up, observed five or six "round, metallic-looking disks," approximately 9 m (30 ft) in diameter, passing 300 m (1000 ft) overhead on that same morning. It was found that sightings of silvery discs had been occurring at least since April 1947, when a U.S. Weather Bureau meteorologist and his staff had tracked a large, flat-bottomed ellipsoid over Richmond, Virginia. During the next month sightings of similar objects were recorded in Oklahoma, Colorado, Tennessee, Georgia and New Jersey.

In the summer of 1947, the Air Materiel Command (AMC) was ordered to study the situation and to make recommendations. Air force investigators decided to name these mystery aircraft as "Unidentified Flying Objects" and so the initials UFO became the official term for the phenomena. On 23 September 1947 General Nathan F. Twining reported to his superiors: "The phenomenon reported is something real and not visionary or fictitious. There are objects approximating the shape of a disc, of such appreciable size as to appear as large as man-made aircraft. The reported operating characteristics such as extreme rates of climb, manoeuvrability (particularly in roll), and action which must be considered evasive when sighted or contacted by friendly aircraft or radar, lend belief to the possibility that some of the objects are controlled, either manually, automatically or remotely."

Consequently, the Air Force established a study group termed Project Sign under AMC command to fully investigate the situation. On 8 July 1948 a New Mexico newspaper, the *Roswell Daily Record*, reported that "Army Finds Air Saucer on Ranch in New Mexico" where it had crashed during a thunderstorm near Corona, Lincoln County, northwest of Roswell. Several witnesses had observed a disk-shaped object moving in a north-westerly direction on 2 July 1947. The following morning Mac Brazel, foreman of a ranch in that locality, and a neighbour, Timothy D. Proctor, moving sheep on horseback, came across the remains of an exploded aircraft covering two hillsides. The various-sized chunks of metallic material were extremely light and very tough.

The officers from Roswell Field, the local Army Air force base, reported that it was indeed the remains of one of the mystery craft and that it was retrieved for study. Army Air Force intelligence officer, Major Jesse A. Marcel, who led the initial recovery operation, stated that the material was of an unearthly origin and described it as follows:

"...all kinds of stuff – small beams about three-eighths or a half-inch square with some sort of hieroglyphics on them that nobody could decipher. These looked like balsa wood and were about the same weight although flexible and would not burn. There was a great deal of a parchment-like substance, which was brown in colour and extremely strong, and a great number of small pieces of a metal like tin foil, except that it wasn't tin foil. The little numbers and symbols that we had to call hieroglyphics because I could not understand them, they were pink and purple. They looked like they were painted on. These little numbers could not be broken, could not be burned, wouldn't even smoke." Apparently, the pieces of metallic material could be twisted and crushed into a ball and upon release would return to its original shape without leaving any wrinkles.

Approximately 4 km (2.5 miles) to the southeast a second, smaller, intact craft was found associated with four dead crewmembers on 8 July 1947. The wreckage and the bodies were taken to Wright Field (later Wright-Patterson AFB) in Dayton, Ohio to be examined in the Air Force's

material evaluation laboratories. Lt. Col. Arthur Exon described the material that the craft was constructed out of as being “very thin but awfully strong and couldn’t be dented with heavy hammers... The overall consensus was that the pieces were from space.” As to the bodies he stated that “they were all found... in good condition,” were humanoid with large heads, thin bodies, long-armed, four-fingered with webbing between them and fragile skull and bones.”

Detailed analysis of the wreckage, bodies and a further close observation of a huge, tube-shaped craft with two rows of square windows, observed in flight by Clarence S. Chiles and John B. Whitted, pilot and co-pilot of an Eastern Airlines DC-3, at 2:45 a.m., 24 July 1948, over Alabama and independent verification of the object’s appearance and performance by ground-maintenance crewman at Robins Air Force Base in Georgina, was all the proof that Project Sign needed. An “estimate of the situation” was produced that stated that UFOs could only be otherworldly vehicles and that visitors from outer space had arrived.

On 20 August 1949 astronomer Clyde Tombaugh, who had discovered the planet Pluto, and his wife and mother-in-law, observed a “geometrical group of faint bluish-green rectangles of light” attached to a larger “structure.” After a second observation of a UFO he suggested that such objects might emanate from “hundreds of thousands of habitable worlds.”

Since 1947 there have been a continuation of encounters with UFOs and the entities that pilot them and over 3,500 military and civilian pilots have reported their sightings officially. Since that year there have been over 400 radar tape recordings of UFOs from around the world that researchers know about. On 3 March 1999 the Belgium Air Force released its radar tapes to the public showing a UFO descending from 3000 m (10,000 ft) to 150 m (500 ft) in less than 5 seconds. Since 1947, over 4000 residual trace marks have been found in or around the vicinity of alleged UFO landing sites throughout the world. There were more UFO reports in 1947 than in any subsequent year and the vast majority of incidents were reported on by the news media.

Project Sign was succeeded by Project Grudge (1949-1952), which was in turn succeeded by Project Blue Book (1952-1969) from which date the U.S. Air Force no longer made their findings public. However, the passing of the American Freedom of Information Act allowed researchers to access over 30,000 hitherto classified UFO papers and documents since 4 July 1974 showing just how seriously the U.S. Government has been addressing the phenomenon.

On 21 September 1987, President Ronald Reagan while addressing the 42nd general Assembly at United Nations Headquarters in New York stated: “Perhaps we need some outside, universal threat to make us recognise this common bond. I occasionally think how quickly our differences worldwide would vanish if we were facing an alien threat from outside this world. And yet, I ask, is not an alien force already among us?” On 26 April 1990 Soviet President Mikhail Gorbachev stated, “The phenomenon of UFOs is real. I know that there are scientific organizations which study the problem.”

Researchers have discovered that if one examines the UFO reports around the world during each year then, on average, a UFO is observed every 15 minutes throughout that year. From around the world there are close to 100 reports of UFO observations for every 24-hour period and approximately 35,000 reported observations every year. It is highly unlikely that there are 35,000 interstellar journeys being undertaken each year from the extraterrestrial home planets to this planet. It is much more likely that this is all local traffic. All this data shows us quite clearly that this planet has been colonised. So, where are they? They certainly do not appear to be walking the earth amongst us.

Colonising an alien living planet is quite different to colonising another island or continent on

one's home planet. A living planet is an enclosed system of micro-organisms recycling the matter and energy. Larger organisms composed of many of the same micro-organisms living in permanent symbiotic communities, that we would refer to as plants and animals, play an important but small role in the recycling process. Mass extinctions of the larger organisms have occurred many times on this planet with little effect on the enclosed system of micro-organisms that together constitute a living planet.

A small number of the larger organisms, keeping themselves enclosed within a small section of their ecosystem of micro-organisms, within a spacecraft, are quite unable to enter another enclosed system. With the first breath of air that an ET takes on any alien planet, vast numbers of minute organisms would be inhaled. The immune system of such an intruder would be unable to recognise these new organisms, which would immediately begin feeding on the internal organs of the intruder. The micro-organisms that the ET is composed of, and is associated with, would immediately begin to infect a planet with no experience of such organisms. Two enclosed systems would meet with catastrophic results.

Any space travelling intelligent organism would have long ago adapted to living within the confines of their vehicles, large or small. Unlike the crews of star travelling humans in science fiction accounts there would be no opportunity to exercise the limbs and lungs in the wonderful open air of an alien planet. The surface of the planet would always be off limits.

Because of the distances and the enormous periods of time that it would take to visit even the closest neighbouring star systems in the earliest stages of a colonisation program, the population of organisms embarking on this new endeavour would have to adapt to living within their vehicles. Enclosed bases would be set up on both dead and living worlds. By the time that further colonisation occurs the organisms would have little desire to ever leave the confines of their home crafts. Their bases and their vehicles would constitute their entire habitat.

The universal environment would have moulded the minds and bodies of the travellers. Security would not be found in the bright sunlight of a wild world. Security and most of the necessities of life would come entirely from within their own enclosed system. However, for their populations to grow, resources from beyond their enclosed system would be needed.

The colonisation of living planets would be necessary so that living resources could be obtained and added to their own enclosed system. ETs are forced to colonise planets as their populations increase because if they did not take the opportunity to do so with every available suitable planet then another competing population of ETs would do so. Colonisation of habitat within a global environment such as occurs here is under the same competition pressure as would occur on a larger scale in the galactic environment. Think about the microbes that invade and colonise the body of every human as soon as they are born.

Long periods of experimentation would be needed until the colonisers of a planet had adapted themselves to the micro-organisms of that planet. But they would have no desire to walk amongst its inhabitants, which would be forever alien to them. They would remain within their own environment and only make brief reconnoiters into the outside environment.

They would not place their home bases on the surface of a planet where it is at the mercy of the weather and other external influences. Why build an external structure when there is a simpler way of obtaining all the living space needed and which can be almost infinitely extended. A space faring civilisation would have developed all the technology it needs to keep the members of the community content within a small-enclosed space. Outside would be the deadly vacuum of interstellar space, inside would be home. Once a living planet had been colonised the members of the community would still be content only within a small, enclosed space. Outside would be the

deadly atmosphere of micro-organisms, inside would be home.

Extraterrestrials would colonise a planet by building underground bases in stable geology. Their technology must include the ability to precisely heat the rock, mix its molten state with appropriate minerals and use it to line and seal the external walls of the cavities created. Living within enclosed spaces within rock would be little different to living within enclosed spaces on vehicles with their own gravity travelling between rocky planets. Populations would grow, new underground bases would be constructed, the surface-living ecosystems would be left completely undisturbed to be examined and portions of it would be incorporated, as needed, into their own ecosystem. The planet would be thought of as their home.

The biological diversity of plants and animals on the surface would be regarded as their own valuable resource from which they may dip into from time to time when need arrives. Galaxy-colonising extraterrestrials would regularly encounter intelligent organisms developing their own technology. Because the same universal laws of nature would have moulded both species the colonising extraterrestrials would not regard other intelligent species as a threat to be exterminated, but as another resource available to all who exist within the universal ecosystem. If you were going to colonise another world you would adapt yourself to that world. You would eventually begin to interrelate and hybridise with the new species.

The same thing has occurred on this planet when Europeans began to colonise the lands of other peoples. At first the idea of interbreeding with the locals was looked at with disdain. But after a period, when the Europeans had become familiar with the local inhabitants, interracial marriages occurred and today it is regarded in most places as a personal human right to marry whosoever you please. The same would eventually happen with galaxy-colonising extraterrestrials except that it would need extremely genetically sophisticated engineering.

Let's look at the data that is accumulating and particularly look at the descriptions of some of the intelligent organisms that really appear to have been attracted to this rare and wonderful planet. To really understand the extraterrestrials though, we also must understand ourselves. It must always be remembered that, to all other potentially occurring intelligent life forms inhabiting planets throughout the rest of the universe, to them, we are the extraterrestrials. We also must remember that our situation on this planet is not unique.

We are operating under the same laws of nature that proscribe what is possible and what is not. The natural forces that have created the universe have also created us. Competition and co-operation have moulded our physical appearance, emotions and behaviour. These same forces will have moulded the entities that inhabit any planet. Consequently, we can expect somewhat similar physical appearances, emotions and behaviour.

Unfortunately, at this time, all of our information comes from those that have experienced an extraterrestrial contact and have been able to relay the information to others. Such information is likely to contain errors and there is difficulty in our separating fact from fiction. However, because we are only at the introductory stage of learning about what is occurring beyond our field of vision and knowledge, we are really only looking at patterns to indicate the reality beyond our everyday existence.

We are in a similar situation to people of three or four hundred years ago trying to understand what the rest of the world was like beyond our homeland. We were dependant on descriptions by those who had travelled to distant lands and who had observed strange people, animals and plants. We could estimate who was lying and who was telling the truth by how non-mediocre the stories were. Exciting tales of giants or tiny peoples, monstrous animals or people-eating plants and other oddities fall beyond the norm and were soon regarded by most people as fabrications.

Some beings that sounded possible, sea monsters, hairy people, unicorns and dragons were found to be partially correct descriptions of actual living things. So sea monsters turned out to be whales, hairy people turned out to be gorillas, chimpanzees and orang-utans, unicorns turned out to be the Arabian Oryx, a white horse-like antelope with twisted unicorn horns, one of which was often lost by males in battle and dragons turned out to be crocodiles, alligators and a giant species of monitor lizard with a flickering yellow tongue from the island of Komodo in the Indonesian Archipelago.

So, it is with the descriptions of extraterrestrials. Some may be fabrications; some may be only partially correct descriptions of true living beings. Just like those people of three or four hundred years ago we have little understanding of the natural habitat and life histories of these new creatures. But we cannot ignore them any longer for these creatures are a potential threat and we must strive to understand them because we are going to have to learn to live with them. That is, because these creatures have journeyed to our homeland and it may well be that it is also their homeland.

If one were making up a story about extraterrestrial contact, we would expect that one would usually make the encounter with an alien an exciting and frightening experience so that those who have reported the encounter can be regarded as heroic. Just like any science fiction film the alien should be bizarre, and the witness should be at least partly in control of the situation. If one were to make up a rather boring story where the aliens and the events are mediocre and/or the story does not make much sense than that person will be regarded as having a poor sense of imagination as well as being a bit of a crackpot. However, the story may well be more factual.

Australian UFO researcher Bill Chalker has tracked down some very early interesting reports of UFOs and extraterrestrials that predate the modern history of UFOs and yet contain similar observations found in some modern reports. The following accounts comes from his book *The Oz Files* (Duffy and Snellgrove, 1996) and describes the earliest UFO observation above Sydney Harbour only five years after the first Europeans settled on the Australian continent. In *An Account of the English Colony in New South Wales*, Lieutenant Colonel Collins recorded in 1793: 'An extraordinary appearance in the sky was observed by several people between five and six o'clock in the evening of Friday 12th of the month. It appeared as if a ray of forked lightning had been stationary in that quarter of the sky for about 15 minutes, which was the time it was visible. It was not to be discerned, however, after the sun had quitted the horizon.'

The Oz Files also describes the first UFO / ET contact report described in an old document entitled *Memorandum Book of Fred Wm. Birmingham, the Engineer to the Council of Parramatta. A Machine to go through the Air. AD 1873*, which contains details of what sounds like an early abduction account. Frederick William Birmingham, an engineer and surveyor lived in Duck Lane, Parramatta, west of the city of Sydney, from 1868 to 1873. This document came into the hands of Wallace Haywood, a teacher in Parramatta, and he passed it on to the De Launte family in the late 1930s or early 1940s and eventually Bill Chalker received it. It describes a strange experience that Fred Birmingham had on 25 July 1868, a dream or a vision that so bewildered him that he described the experience and wrote the following account.

'I saw an "Ark" and while looking at it, I said to myself aloud, "Well that is a beautiful vessel." I had no sooner ended the sentence than I was made aware that I was not alone, for to my right hand and a little to the rear of my frontage a distinct voice said, slowly, "That is a machine to go through the air".'

'In a little time, I replied, "It appears to me more like a vessel for going upon the water, but, at all

events, it's the loveliest thing I ever saw". Twenty yards from Fred Birmingham, the vessel moved through the air in a zigzag fashion and 'then stopped and descended some twenty feet or so as gently as a feather on the grass.' Fred described the colour of the machine as '...a brown colour... its peculiar shaping's are well impressed upon my mind and the colour seemed to blend with faint, flitting shades of steel blue, below and appearing tremulous and like what one might term magnified scales on a large fish'.

He also described a being or spirit that was 'like a neutral tint shade and the shape of a man in his usual frock dress' who asked, "Do you wish to enter upon it" and Birmingham answered "Yes." "Then come", 'said the spirit, thereupon we were lifted off the grass and gently carried through the air and onto the upper part of the machine.' Birmingham went down three steps into the pilot house in which was a table covered with a material like oilskin and only 60 cm (2 feet) of space between the table edge and the walls. Birmingham stated, 'Everything appeared very strong, the sides I noticed were extremely thick, about 6 inches (15 cm) and I wondered why they were so strong in a machine to go through the air'.

Birmingham then became concerned about being aboard this strange machine and stated 'I felt miserably queer – just like one who undertaking a billet or post he knows nothing of. The hand of the spirit was resting on the table and it held several printed papers. The first paper was covered with figures and formulae. Thinking the formulae and figures might be too intricate for my comprehension I said to the spirit "Oh! Will I want them?" The spirit replied slowly, but with marked emphasis, "It is absolutely necessary that you should know these things, but you can study them as you go on"

I again cast down my eyes between my hands as it were on the table and considering silently the words of the holy spirit and when I looked about, I found that I was alone on the ark! So, I fell, I suppose into my usual sleeping state, and waking next morning deeply impressed with that vision of the night.' In 1873, Birmingham described another sighting at sunset of three small clouds that appeared and from one of them extended two screw-like appendages between which appeared a shape 'like two flat necks on a turtle-shaped body'. This assembly disappeared, reappeared and then 'to my surprise the two big screws folded up like the arms of a bear and lost their shape in the middle cloud'.

Australian UFO researcher Bill Chalker was able to bring to public information a 1927 UFO flap that occurred over a period of a few weeks at Fernvale near Murwillumbah in northeastern New South Wales, Australia. It included all the classic elements of some modern UFO incidents. For several nights, a mystery moving light in the night sky was observed. The local explanation for it was that it was just a 'dancing star'. Then the cattle began to act as if a terrible predator was in the locality and two pigs were found dead with puncture marks over the neck and body. A third pig vanished from its sty and 150 metres away a large quantity of blood and pig's hair was found.

Then an observed landing of a domed craft on top of a hill that left a circular 9m burnt patch of grass. The explanation was that it was a meteorite. Next, two small bipedal beings were observed, each with an elephant-like trunks hanging from the face (it is possible that the trunk was air filtering breathing apparatus). Two human-sized bird-like creatures, never observed by anyone before or since, were observed for a week perching in trees, flying overhead during the day making conversational laughing sounds, and calling repeatedly at night. A farmer was terrified when he stumbled upon one of these gigantic birds walking towards him along the road at night as he was returning home from a school parents meeting. These bird-like creatures remind one of the Mothman or Owlman (see Chapter 3) that terrified observers in the UK and the USA.

Then a mystery man in strange white clothing arrived at a neighborhood gathering and departed

before they realized that he was not connected to any of the local families. The arrival of two men in black in a 1920's model car was the final saga in these weeks of strange events. It was the first car ever to enter the Fernvale valley in a locality where no one owned a car. It drove all over the very rough farm terrain at night having no difficulty opening and closing paddock gates, all with different home-built wire locks, and twice driving past the farmhouse without taking any notice of the bewildered occupants. The incidents were completely incomprehensible to the witnesses and one family, so terrified by the mysterious occurrences, immediately sold up the farm and moved away.

Australian mysteries researcher Rex Gilroy collected a UFO / ET contact report from the Aboriginal people on the northern edge of the Great Sandy Desert, in Western Australia, that happened in 1933. An Aboriginal woman described how they were camped at Discovery Well when a 'large shiny egg' came down out of the sky during daylight and flew low over them to land nearby. Out of the 'egg' came several strange grey-skinned, man-like beings, one of which stunned the woman with an object carried in his hand and she was carried aboard. The interior of the egg was glowing, and she was strapped onto a shining table and experimented with until being released.

John Kernott, a mailman in the Kimberly region of Western Australia, related similar reports to Bill Chalker concerning Aboriginal women being abducted by 'feather foot' spirits or 'men in black.' These beings do not walk on the ground, they walk in the air and their eyes are difficult to see. They have no problem passing through walls and after the women have been abducted, they become pregnant, their bellies swell, then reduce in size and no babies are born.

John Kernott's Aboriginal father-in-law described seeing a green light, when he was a young man, spinning down to his tribe before the white men came and took them off their land. The spinning light landed behind some trees and several little green men walked around the frightened people, looking carefully at them, before walking back to the green light and it rose up and flew away. Perhaps they were the same species of ET that geology and anthropology Professor Rapuzzi Johannis described, during his encounter with two ufonauts and their craft at the Chiarso River near Villa Santina, Friuli, Italy on 14 August 1947.

These early reports down under are like modern reports of strange glowing objects piloted by unusual beings temporarily abducting people and experimenting with them and of woman experiencing phantom pregnancies after these bizarre occurrences.

We must also be careful with stories that are too nice and familiar. Wise and friendly aliens taking people on joy rides with only our best interests at heart must be examined with scepticism. All organisms are in direct competition with one another for resources. Co-operation occurs only when it is necessary for survival and all parties benefit from the partnership. So, in these reports one of the things that we will be looking for are descriptions and patterns of mediocrity, because, theoretically, extraterrestrials should be efficient and highly adapted organisms with body shapes and behaviour moulded by their native habitat as has occurred with ourselves.

The following information has been taken from a couple of recently published books about ETs. One is *The Field Guide to Extraterrestrials, A complete overview of alien life forms based on actual accounts and sightings* by Patrick Huyghe with illustrations by Harry Trumbore. The other is *Alien Base, Earth's Encounters with Extraterrestrials* by Timothy Good. In these volumes the authors have gathered together descriptions of reported encounters with intelligent alien life forms. We will examine those reports that occurred before the general public awareness of the possibility of life beyond our planet that has particularly taken place during the last three decades at the end of the twentieth century.

The only way that we can test whether there is any validity to these reports is to apply the test of mediocrity. We are not referring to emotional mediocrity, for all these events were unique incidents for the witness, rather we are looking for physical, biological and behavioural mediocrity exhibited by the extraterrestrials.

In 1940 near the village of Townsend, Montana, 37-year-old Udo Warteno was searching for gold in the stream on his claim, when he heard a loud turbine-like droning sound and saw a strange craft shaped like two soup plates made of stainless steel. It was 100 feet in diameter and 35 feet in height. Part of the lower hull descended with a circular stairway attached to it and a man came down and walked over to him.

The man appeared strong and youthful though he had white hair. He was very good-looking with almost translucent skin. He wore light-grey coveralls and a similar coloured round cap on his head and slippers on his feet. He spoke careful English and apologised for intruding and stated that they would not normally allow themselves to be seen. He asked if they could have some water from the stream, which, he stated, has no algae in it.

Udo consented and a pipe was let down into the water. The stranger invited Udo into the craft, and he entered a 3.6-m by 4.5 m (12-foot by 15 foot) room with indirect lighting, a close-fitting sliding door, upholstered benches around the side and an older man dressed in plain clothes that also had white hair. Udo asked where they came from and they pointed to the sky and told him that they live on a distant planet.

The younger man then volunteered information concerning the craft's propulsion system. He explained that there were two flywheels, three feet wide and several inches thick, built into the outside rim of the craft. These spun in opposite directions, the effect of which was that the forces created overcame the gravitational pull of the Earth. They used gravity, skipping upon the electromagnetic radiation that saturates space to reach other planets. They stored solar energy in batteries and powered the craft with hydrogen that they extracted from water.

Udo accepted an invitation to be monitored for impurities by an X ray machine that they passed over him and he asked them their ages and was told that they were 600 and 900 years old, as we measure time. When asked why they came to Earth he was told that they monitored our progress but could not interfere in any way. They asked if he would like to travel with them, but Udo declined as he remembered that a young man had vanished without trace in the vicinity two years before. Before he left the craft, the strangers advised Udo not to mention their encounter as no one would believe him and although he wrote down a full account of the incident, he kept it secret for 30 years and then told only his closest friend who passed the information on.

This report could be regarded as mediocre and the contactee told only his closest friend. The chances of intelligent beings evolving on another planet with appearances identical to humans would appear unlikely. However, if the natural forces of nature moulded our appearance and behaviour on this planet then it is certainly possible that it could have occurred elsewhere as well to produce an almost identical life form. Such is often the case on our planet where completely unrelated animals have come to look almost identical to one another as mentioned in the last chapter.

In 1943 Daniel Leger, a young Frenchman working in a labour camp in Gdynia, north of Gdansk, on the Baltic coast of Poland, met 1.75 m tall, blonde-haired white women with slanted Asian-like eyes. She was trying to remove sand from a metallic craft, 6 metres in diameter and 2 metres in height, constructed like 2 plates joined on either side of a middle section consisting of 2 rings. The craft was partly embedded in sand dunes behind the beach. She spoke to him in a guttural language that he did not recognise. She wore a tight-fitting one-piece suit of dark-brown cloth

without pockets or fasteners, but which incorporated her boots as an integral part of the suit.

A four-inch-wide belt the same colour as the suit encircled her waist with a square silver buckle which she touched to open the door of the craft into which she climbed after Daniel had helped her free the craft. The interior was devoid of instruments and the woman sprawled on the floor as if riding a motorbike. The door panel closed leaving the hull seamless as if the door did not exist.

The two rings around the craft began rotating at ever-increasing speed; the lower one clockwise and the upper one counter clockwise. A dark area between the rings became luminous and a low rumbling sound was heard and then the craft rose slowly from the ground before accelerating to disappear to the north. For many years Daniel thought that the craft was a new design for a fighter plane and that the aviatrix was a German Air force pilot.

This report could be regarded as mediocre and the contactee did not believe that he was in contact with an extraterrestrial. This may be the only reported encounter with the pilot of a 'foo fighter.' Once again, we have a very human-like ET.

A team of archaeologists led by W. Curry Holden watched a bright object fall to the ground at 11-30 pm on 4 July 1947 during a storm near Roswell, New Mexico. The next morning, they found what looked like a crashed airplane without wings embedded in the side of a desert cliff. A body was visible through a hole in the side of the craft and two more bodies lay on the ground nearby. Two other men who were camped nearby were also inspecting the wreckage. The military quickly cordoned off the area and the witnesses sworn to secrecy.

Glen Dennis, the mortician at Ballard's Funeral Home in Roswell, was summoned to pick up an injured airman and take him to the local hospital and after dropping him off at the emergency room walked into the hospital lounge for a drink. Here he was warned by a nurse to leave at once before he got into trouble, then was spotted by an Army officer who summoned two Military Police who escorted him out. Some days later Dennis was able to ask the nurse what all the fuss was about and after he swore not to pass the information on, was told that she had been asked to assist two doctors, whom she had never seen before, at an autopsy.

There were three bodies, two of which were badly mutilated. They measured about 1.35 m (4.5 ft) tall; each with a bald head larger than that of a human, small sunken eyes, a concave nose with two small nostrils, ears consisted of a hole surrounded by tiny lobes and a thin lipless mouth without teeth, but with hard gums like rawhide strips. The body was somewhat human-like though the arms between the elbow and the wrist were more elongated and only four fingers with little hollow pads that looked like suction cups made up the hands.

This is obviously the same crashed disk as previously mentioned. The description of these aliens could be regarded as mediocre with small human-like features. There are some mammals on our planet that have lost their teeth during their evolutionary history and now chew their soft-bodied invertebrate food items with horny gums as described in these supposed extraterrestrial beings. Many mammals have also reduced the number of appendages on their hands and feet. A horse runs on a single toe, the hoof being its toenail. Several unrelated species have developed opposable digits. A lack of an opposable digit on the hands of these ETs is strange because it means that the hands may have a poorer ability to handle and manipulate objects.

Professor Rapuzzi Johannis, a geologist, was studying rock formations on 14 August 1947 at Villa Santina, Friuli, in the north of Italy, when he observed 45 m (150 ft) away, on a rocky riverbank, a lens shaped craft that was 9 m (30ft) wide and 5.4 m (18 ft) high. It had a low central cupola or small dome with a telescoping antenna on top.

On approaching the craft, the professor observed two beings that measured 1 m high, each with a hairless head larger than that of a human, a green skinned face with large, hemispherical and protruding yellow-green eyes with vertical pupils. Their faces lacked eyebrows or eyelashes and there were ring-like lids at the base of their eyes. The nose was long and straight, and the mouth was a fish-like slit that kept opening and closing. The body was somewhat human-like, the chest quivered, and their green hands had eight fingers, four fingers opposing another four fingers where we have a thumb. They wore dark blue translucent overalls with red collars, leg cuffs and wide belt with a tight-fitting brown skullcap.

The description of these aliens could be regarded as mediocre though the hands are very interesting with all digits opposable. This report is probably responsible for the well-known 'little green men from outer space' description of some extraterrestrials.

On 15 May 1951 at Salzburg, Austria, a soldier with the U. S. Army occupation forces was walking home when he was paralysed with a clicking pencil-shaped device held by a 1.5 m (5 ft) tall human-shaped entity with a cylindrical, large-skulled head covered in hairless white skin. Large compound insect-like eyes dominated the face, which had ear holes, nostril holes and a slit for a mouth. The being's torso was cylindrical, like a tin can, the legs were proportionate to the body like a human, however, the arms were shorter than of a similar-sized human and the hands ended in three long fingers.

The entity strapped a black square plate across the soldier's chest and floated him to a large, sphere-like, craft that measured 45 m (150 ft) in diameter. The craft's walls were transparent, and the soldier had a perfect view out as the craft rose away from the Earth's surface, passed the moon and landed on what looked, to the soldier, like the planet Mars. The craft landed on a platform and around it was many saucer-shaped craft. Similar beings to the one that had abducted him moved about and in two craft were humans that failed to acknowledge him. Then he was brought back in the craft to his original location in Salzburg and released via the same clicking pencil-shaped device. He returned home and discovered that he had been away for one hour.

The description of these aliens could be regarded as mediocre except for the compound eyes, a primitive and less efficient sight organ that only the insects retained on our planet. These may be regarded as true Martians, though they may not be native to that planet and may have come from beyond our solar system to colonise Mars or perhaps have established temporary bases there.

In early spring, 1951, in South Africa, 'H.M.', a British engineer working for Contactor, a subsidiary of the British Rheostat Company, was driving across Drakenstein Mountain at 11.15 p.m. when he saw a man on the road side waving his arms and stopped to assist. "Have you any water?" the man asked in English with a strange accent that H.M. had not heard before, "you see we need water." Together they fetched water from a nearby mountain stream using a canister from the car and the stranger then beckoned H.M. to a strange object hidden in the shadow of the escarpment approximately 100 m (330 ft) from the road. As they approached H.M. could see that it was a domed disk-shaped machine with windows around the centre and an illuminated entrance in the base with steps that led into the interior. H.M. estimated that it measured from 10 to 15 m (30 to 50 ft) wide and 4m (13 ft) high.

The man invited him to enter and he found that the interior was circular with square windows around the wall beneath which was a circular couch encircling the craft. A very white light that appeared to emanate from the walls and ceiling illuminated it. In the centre of the floor was a rectangular slot from which eight 'T'-shaped levers, a metre (3.3 ft) high, emerged from the inside of the machine. There were four men attending to another man who lay on the couch near a blank instrument panel.

The men were all slim, 1.5 to 1.6 m (5 to 5.3 ft) high with chestnut hair, slightly pronounced foreheads, hairless faces and feminine hands. They all wore beige-coloured laboratory overalls, fastened with a belt, trousers and shoes. None of the other men turned to look at H.M. and they appeared younger than the man who had gone for the water, who looked as if he was in his forties. This man took the water over to the others and then returned to explain to H.M. that there had been a slight accident and the man on the couch had been burnt.

H.M. told the man that he was an instrument engineer and that he was puzzled by the lack of navigation instruments and asked where the machine's engine was located and where they were from. The man replied that instead of an engine the craft used a very heavy fluid that circulated in a magnetized tube at the speed of light that nullified gravity and that they had journeyed from the stars. He then invited H.M. to leave the craft and he returned to his car and continued home.

The description of these aliens is somewhat mediocre, as is the accident that occurred and the desire for water. One would imagine that the UFO crew would have all necessary medical emergency equipment on board the craft and may have used the desire for water as a method to make contact with a human so that he could be monitored in a relatively undisturbed state. If the incident was made up by the witness, it shows little imagination.

In 1954 Air Marshal Sir Peter Horsley, Deputy Commander-in-Chief of the Strike Command, was invited by a General Martin to attend a meeting with a Mr Janus. Mr Janus asked Sir Peter Horsley for details of investigations into UFO sightings reported by RAF pilots, that Sir Peter Horsley was in receipt of. Air Marshall Horsley complied and on giving the information known to him, received an unusual reply. Mr Janus detailed the UFO situation in which he stated that the UFO movements around the planet were "only a thin trickle in the vast highways of the universe. The Earth after all is a galactic backwater inhabited by only half-civilized men, dangerous even to their neighbours.

Most of the vehicles are robot-controlled space probes monitoring what is going on. Some are manned in order to oversee the whole programme and to ensure the probes do not land or crash by accident. They must always ensure that evidence of their existence is kept away from most of the Earth's population. Since time immemorial there have been tales of vessels coming out of the sky bringing strange visitors. Observers do come among you and make contact on a very selective basis where they judge that such contact could not harm either party.

These observers have studied Earth for a long time. With advanced medical science they have been fitted out with the right sort of internal equipment to allow their bodies to operate normally until they leave. It is not very difficult to obtain the right sort of clothes and means to move around quite freely... The observers are not interested in interfering in your affairs, but once you are able to escape from your own solar system it is of paramount importance that you have learnt your responsibilities for the preservation of life everywhere... While you are still far away from travelling in deep space, such contacts will be infrequent and must be conducted with great secrecy. The observers have very highly developed mental powers, including extra-sensory, thought reading, hypnosis and the ability to use different dimensions."

Immediately after the meeting Air Marshall Horsley wrote a verbatim report and gave it to Lieutenant-General Sir Frederick Browning. Sir Peter wrote of this incident in his autobiography, *Sounds From Another Room* and afterwards in conversation with Timothy Good described Mr Janus, as "somehow, he was difficult to describe. What made it strange is that I have no lasting impression of him: he seemed to fit perfectly in with his surroundings. If I have any impression of him, it was his quiet voice, which had a rich quality to it. He looked about 45 to 50 years old, with thin, slightly grey hair, and he was dressed in a suit and tie. He was quite normal in every way, except that he seemed to be tuning in to my mind, and gradually seemed to take over the

conversation. My initial reaction was one of scepticism, but by the end of the meeting, I was quite disturbed, really.”

This is a particularly interesting report and indicates extraterrestrial and human contact at a high level of government authority. Unless such contacts are eventually reported to the general public, as this one was, it is quite simple for such contacts to be kept secret.

Early in the morning on 1 November 1954 Rosa Lotti, a 40-year-old mother of four children, was walking through woodland on her way to church at Cennina, Arezzo, Italy, when she observed a strange object in a grassy clearing. Spindle-shaped, like two cones on a single base, 1.8 m (6ft) high and .9 m (3ft) wide, covered in metal of a leather colour, the craft had a glass door on the lower half with two small seats and controls visible within. Two cheerful little men, 1 m (3.3 ft) high approached her and spoke to her in an unknown language. Perfectly human in appearance, although child-sized, their faces were of older men, clean-shaven and with short, protruding white teeth. They wore grey overalls, doublets and cloaks and wore leather-like helmets on their heads.

They then grabbed the bouquet of carnations and a pair of stockings that she was carrying, placed them in their rocket-like craft and pointed a tube-like device at her. Becoming frightened, Lotti hurried off and recounted the incident to her parish priest and to the police who conducted investigations and found nine other witnesses, including two who had observed Lotti with the two little men.

The description of these aliens is quite mediocre and only their small size is of interest.

Carroll Wayne Watts, a 39-year-old cotton farmer from Loco, near Wellington, Texas, discovered a bullet-shaped 30 m x 3 m (100 ft x 10 ft) aircraft, with a single bright light on the front, on his property at 10.30 pm on 31 March 1967. He had previously observed the craft at 11 am on 8 February 1967 in rapid flight at an altitude of approximately 400 m (1,300 ft) and again at 3.00 pm on 21 March 1967 only 180 m (600 ft) away travelling at 80 kph (50 mph) about 15 m (50 ft) off the ground. It was a dull grey colour that did not reflect light. He approached it believing that it was a new US Air Force aircraft that may have had to make an emergency landing.

Watts found that although the craft was stationary it did not touch the ground but hovered a short distance above it. A door opened from the top and formed access steps and a voice asked if Watts would enter for a physical examination. Watts declined the invitation and ran home to tell his wife who phoned the Chief of Police, Donald Nunnally, who was a relative of Watts. The Chief of Police and Collingsworth County Sheriff John Rainey accompanied Watts to the scene of the incident but found nothing. Sheriff Rainey informed the Air Force and a lieutenant, who could offer no information or advice on the matter, interviewed Watts.

Then at 8.30 pm on 11 April 1967 Watts saw a similar light in the same location and drove out to have a closer look. He located an egg-shaped craft, the base not as rounded as the top, approximately 9 m (30 ft) long and 4.5 m (15 ft) in height at the centre. It had a clear bubble on top measuring a metre in height, a light at each end and one in the centre that changed from red to yellow to green and two antenna-type rods extending a metre below the craft.

A door opened from the top and formed access steps with two men standing on the steps and another two standing in the doorway. Once again, he was asked to enter and to take a physical examination. This time he agreed and entered a room with metallic-looking flexible chairs. The hatch slammed shut, one of the men pushed a button on a small control panel, the lights dimmed, and a jolt was felt as the craft moved off.

These men stood 1.2 m (4 ft) high, weighed from 50 to 60 kilograms (115 to 130 lbs) and had white to light grey skin with no hair on their head or eyebrows above their elongated eyes. Their eyes were 2.5 cm (1 in) in height at the centre, tapered to each end with oblong pupils permitting them vision around the side of their heads. Two of the men had brown eyes, one had blue eyes and one had red eyes.

Two slits above a slight protrusion made up the nose, a small slit on either side of the head made up the ears and the mouth was a straight line with very thin lips that never opened but were stretched to produce a smile, the only emotion ever produced on the face. They were dressed in white coveralls and wore shoes that resembled a high moccasin that made no noise when they walked.

After travelling for 20 minutes the craft slowed to a stop and they entered a passageway to another ship, the interior of which was identical to that of the first craft that he had encountered. A strong odour that smelled like sulphur came from a small vent. Watts was asked to disrobe and was then placed in front a 1.8 m (6 ft) high machine out of which flexible needles 2.5 cm (1 in) apart protruded until they touched his skin.

He was then returned to his farm in the smaller craft and on the way back asked the purpose of the physical examination. He was told that a survey was being conducted and the planet was being mapped because the people on Earth would soon travel to the Moon and then build bigger and better equipment to travel further into space at which time they would intercede. They added that all their energy was put to work for scientific matters and that they did not engage in warfare, had great intelligence and long-life spans.

The description of these aliens is somewhat mediocre except for their elongated eyes and slits for nostrils, ears and mouth.

Wendelle Stevens, a former US Air Force Pilot, was delivering Beechcraft T-34 trainer aircraft to the Peruvian Navy in 1967 and afterwards hired some native boatman from the river port of Leticia to take him up river to see the rainforest. He remarked to the Indians that there would very likely be a market for the various species of edible tropical fruit that grew on the riverbanks and asked why they did not grow them in plantations. They answered that it may be too large a project for them. However, one of them stated that there was a group of Americans, who they themselves had not observed because it was beyond their tribal territory, doing just that three- or four-days rowing further upriver. Only a few months before, the Indian added, a German man had made the journey upriver through the different tribal territories to seek out these mysterious Americans and he had not returned.

Fascinated by the reports of an American exotic fruit plantation and the German who had gone in search of them, he made enquiries in Lima. He was shown a newspaper report concerning an amazing discovery by the German man, a Mr Ludwig F. Pallmann, who was conducting research for the Agricultural University of Lima into inexpensive high protein food. Searching for a giant arrowroot plant species upriver from Iquitos, between the Mirim and Yavari Rivers, close to the Peruvian / Brazilian border, Pallmann's Indian guides gave him directions to an American encampment, which they would not approach. Instead of Americans, he found fair-skinned people, who spoke an unknown language, collecting, growing and hybridising local edible fruit-bearing plants within plastic-like tents.

Pallmann described these strangers as having a slim-build, weighing 45 kilograms (100 lbs), standing 175 cm (5 ft 10 in) tall on extremely long legs. They had light brown skin and hair, huge dark eyes, an unusual chin and a small toothless mouth with long, thin lips. They had unusually

long fingers that had no fingernails and instead ended with a flat disc. They inhaled deeply with every breath that they took, contracting their sensitive fingers as they did so. They communicated with Pallimann via a speaking device attached to the chest.

These strange people identified themselves as part of a team of off-world scientific collectors visiting our planet to acquire new food resources. They came from a world called Itibi Ra II, near the centre of the galaxy, had discovered our planet many thousands of years ago and had been regular visitors since 1946. Over hundreds of thousands of years, they had evolved from meat eaters to vegetarians and now conducted tremendous voyages of exploration harvesting new food resources from other living worlds.

They had three streamlined disc-shaped flying machines, two of which were supply craft and two very flat speedboats propelled by air-jets. A fleet of thirty faster-than-light speed travelling spacecraft stationed in our solar system supplied their base. Having finished their work, they packed up their base and flew Pallimann to Peru before departing.

The description of these aliens and their behaviour is once again, very mediocre and their anatomy, except for the small toothless mouth and the long fingers without nails, almost identical to humans. These are just a few examples of the reports that have trickled down into the public arena and far from being descriptions of frightening science fiction aliens as one might expect hoaxers to report, all the descriptions are, basically, ordinary. The extraterrestrials are as they should be, efficient and highly adapted organisms with body shapes and behaviour moulded by their native habitat as has occurred with ourselves.

Perhaps the most famous stories of contact with extraterrestrials comes from the two books, *Flying Saucers have landed* and *Inside the Spaceships* by the late George Adamski. These remarkable books from the early 1950s contain the clearest close-up photographs ever taken of unexplained hovering machines, some of which were observed by several people. Photographs of these same hovering craft have been taken in different locations around the world since that time.

George Adamski described the occupant of one of these craft that he encountered on 20 November 1952, at 12.30 pm in the Californian desert near Parker, Arizona. He described the appearance of this ufonaut as 'round-faced with an extremely high forehead, large calm grey-green eyes, slightly higher cheekbones than an Occidental, a finely-chiselled nose and an average-sized mouth with beautiful white teeth.' Adamski was also the first person to photograph the now regularly-observed cigar-shaped craft (like a jet airliner without the wings and tail) which he described as a very large mothership that rarely lands and house the smaller disc-shaped scout ships (see Chapter 12).

There have been other reports of more unusual looking aliens that tend to look less human as one would expect when one considers the array of different ecosystems and developmental histories that living planets undergo. Most appear to resemble mammalian primates, but some very few appear to resemble reptiles, amphibians, insects and even giant Amoeba. These have been zoologically classified in the next chapter.

A Biological Guide to Extraterrestrials – A Classification Based on Contact Accounts

Presented at the Third Australian UFO Conference, Brisbane, Queensland, 15 June 2003

For over 100 years, researchers have received detailed descriptions of intelligent, tool-using, extraterrestrial species, visiting this planet in their vehicles (Huyghe 1996). From these eyewitness reports, a classification of these species can be attempted using the same methodology used to classify species naturally occurring on this planet. Even though terrestrial and extraterrestrial species are unrelated, the chemical interactions that makes up the genetic code that in turn determines the appearance and makeup of all living things will fit together in precisely the same way anywhere in the universe. The chemistry of the compounds making up the genetic code demand that terrestrial and extraterrestrial species will be chemically similar.

The evolution of life on this planet was greatly influenced by periodic catastrophic asteroid impact, which exterminated large numbers of species and opened opportunities for other species. Long periods of stable conditions lasting scores of millions of years have been punctuated by planet-wide devastation that were primarily responsible for the extermination of dominant biota such as the mammal-like reptiles at the end of the Permian epoch 245 million years ago and the dinosaurs at the end of the Cretaceous epoch 65 million years ago.

The gravity of giant gas planets such as Jupiter and Saturn sweep up dangerous asteroids and comets and greatly lessen the chance of such destructive bodies striking our planet. Consequently, their existence is vital in determining the history of the evolution of life on Earth. Most solar systems neighbouring our own contain giant gas planets very many times larger than Jupiter and Saturn. These are usually much closer to their star than Jupiter and Saturn and lie within the habitable zone. Because of the close orbit of such enormous gas planets in those solar systems, Earth-sized planets within the habitable zone are unlikely to exist.

If an enormous gas planet, many times larger than our Jupiter, were to orbit somewhere near the orbit of Jupiter, then an Earth-sized rocky planet could orbit within the habitable zone. If any Earth-sized rocky planets were to orbit within the habitable zone of such a solar system, the gravitational pull of the giant gas planet may destroy every dangerous asteroid and comet and periodic catastrophic impacts may not occur. If life evolved on such a rocky planet within the habitable zone and no catastrophic impacts occurred, the history of the evolution of life on that planet would be quite different to that of Earth.

Such a solar system was recently discovered by the Anglo Australian Planet Search Team of U.S., UK, and Australian astronomers using powerful telescopes in California, Hawaii, and Australia. This, the 100th "extrasolar" planet discovered, orbits the star Tau Gruis, 100 light years from Earth, in the southern hemisphere's constellation Grus (the crane). The 100th planet is located at a distance from Tau Gruis equal to that between the asteroid belt and the sun in our solar system—2.5 Astronomical Units (AU). One AU refers to the distance of Earth to our sun and is considered the "habitable zone".

As an example of the major changes that could occur on a living planet if enormous gas planets eliminated the possibility of collisions with asteroids and comets, imagine what may have happened here on Earth. Without the catastrophic asteroid impact at the end of the Permian epoch 245 million years ago the dinosaurs may never have had the opportunity to rule the planet for 170 million years and the mammal-like reptiles may have adapted and evolved to produce modern mammals and possibly even human-like intelligent species scores of millions of years earlier. Without the dinosaurs evolving over scores of millions of years there would be no birds

and so flying mammals such as bats may have dominated the skies.

However, without the catastrophic asteroid impact at the end of the Cretaceous epoch 65 million years ago the dinosaurs may have very likely continued to rule the planet and perhaps intelligent dinosaurs, or perhaps intelligent birds, would have eventually evolved instead of intelligent mammals such as ourselves. There would be other effects as well. For instance, if an enormous gas planet was close enough its gravitational pull may keep the molten mantle more active, perhaps producing a warmer, wetter climate. In such a scenario, reptiles, adapted to drier conditions, may never have evolved and invertebrates such as insects or perhaps amphibians may have continued as the dominant life forms to eventually develop intelligent species.

From eyewitness reports the descriptions of extraterrestrial species include, mammal-like, reptile-like, bird-like, amphibian-like and even insect-like and amoeba-like intelligent species. Their existence, if the reports can be believed, may relate to the occurrence and position of different sized gas planets in their solar systems. Therefore, if extraterrestrial species are chemically like those on this planet, with a similar genetic code, the primary difference between us and species from other planets may simply be the size and position of giant gas planets varying their evolutionary history.

On this planet, life forms have been classified using a standardised international system for labelling categories and the names are usually Latinised names of classical Greek or Latin words, or of modern words. The basic unit of biological classification is the species, which has a specific name, and defined as a group of organisms in which the individuals are free to breed and produce normal, fertile offspring. They do not normally breed with individuals of another species. Closely related species are grouped into a genus, which is identified by a generic name.

A combination of specific and generic names together makes up the binomial system which is the basis of biological nomenclature. All species have a first name that identifies the relationship it has with other species and a second name that directly identifies it. The first name is the generic name whose first letter is always capitalised. The second name is the specific name whose first letter is never capitalised. Both names are italicised.

Groups of related genera are grouped into families, groups of families into orders, groups of orders into classes, groups of classes into phyla and finally into kingdoms. Humans are classified as a member of the Animalia Kingdom, the Chordata (backboned) Phylum, the Mammalia (warm blooded, haired, milk secreting) Class, the Primate (lemurs, monkeys, apes, human) Order, the Hominid Family, the *Homo* Genus and the *sapiens* Species.

To be able to better understand extraterrestrial species we must classify them using the same biological nomenclature. However, because these species are unrelated to species naturally occurring on this planet, we must modify the classificatory names. This already occurs with species naturally occurring on this planet that may look similar, but which come from different subclasses with completely different evolutionary histories. For example, some of the Australian marsupials look at first glance to be very similar to dogs, ferrets, flying squirrels and mice. Latin and Greek words such as *ides*, akin to, *eides*, resembling, *pseudēs*, false and *Juxta* and *anti*, equivalent to, are added to show that although one life form may resemble another, they are not actually related.

Therefore, we are perfectly entitled to classify extraterrestrial species in a similar way. In fact we are forced to do so because the generally agreed upon names for the known species are imperfect, confusing and changeable common names such as greys, reptoids, humanoids, dwarfs, insectoids, named after their general appearance or Alpha-draconians, Altairians, Pleiadeans, Reticulans and Sirians after the names of stellar systems from which it is believed that they originate from.

Patrick Huyghe in his book *The Field Guide to Extraterrestrials*, (Avon Books, 1996) developed a classification table and divided these undescribed species into Classes, Types and Variants. The Classes are Humanoid, Animalian, Robotic and Exotic. Each Class has a Type and the Humanoids are classified into "Human" with 6 variants, Short Grey with 3 variants, Short Non-Grey with 8 variants, Giant with 4 variants and Nonclassic with 4 variants. Animalians are classified into Hairy Mammalian with 5 variants, Reptilian with 3 variants, Amphibian with 2 variants, Insectoid with 2 variants and Avian with 1 variant. Robotics are classified into Metallic with 3 variants and Fleshy with 4 variants. Exotics are classified as Physical and Apparitional and both have 2 variants.

Patrick Huyghe states that without actual specimens to examine and consequently no knowledge of their genetic makeup or their breeding capabilities, it is impossible to assign these creatures to any true classification system (Huyghe 1996). As far as extraterrestrials go, we are in a worse situation than Swedish botanist Carolus Linnaeus was in when he developed his *System Naturae* to classify the then-known animals. It wasn't until the 10th edition of his work published in 1758 that it was accepted by international consent and even today the process is still not finished.

I believe that it is also important to try to classify the extraterrestrial species according to their phenotype, the observable physical characteristics of these intelligent animals. We have no idea how long it will be before we have actual specimens to examine in our public scientific institutions, so it is important to make a start to try to allay the confusion in the minds of those attempting to study this interesting subject. Because these species appear to have greater intelligence than our own and certainly a more highly developed technology, it is foolish for us to not try to classify and understand them.

It does not matter that much of the general public has little understanding of the existence of extraterrestrial species. That is the normal state of affairs in any new endeavour. Nor does it matter if this classification is not widely accepted. We are still in the earliest stages of identifying and classifying extraterrestrial species and many changes and adjustments can be expected. At least we will have begun the process and as a classificatory system comes together there will in time be more consensus and a wider understanding of extraterrestrial species.

To begin then, I propose that we classify all these intelligent, tool-using, extraterrestrial animal species in the Kingdom Animalides, resembling or akin to animals, from the Latin word *ides*, akin to or resembling. These can be further classified into Phylums such as Chordatides, Classes such as Mammalides, Orders such as Primatides and Families such as Juxtahominidae. This classification is based on the individual species compiled by Patrick Huyghe from many sources and published in his book *The Field Guide to Extraterrestrials*, (Avon Books, 1996). Species in each phylum or class are listed according to the date of the observation and report.

Twenty-nine species are classified here, and the world-wide UFO literature provides evidence that there are other species that need to be added. Many reports of similar species, for instance, tall Grays and short Grays, may refer to different races of species, as occurs with humans. Major revisions will need to be undertaken if we obtain further information as to their evolutionary history. We have little proof that any of these species exist. This classification should be regarded as an intellectual exercise to help those grappling with the UFO / extraterrestrial phenomenon.

This classification was first presented at the Third Annual Australian National UFO Conference presented by UFO Research Queensland in Brisbane on 15 June 2003 and was first published in the Proceedings of that conference. Consequently, the paper was published on the Jeff Rense website when the author presented a live on-air radio broadcast on the classification on 13 September 2003. This paper was also published in the *Australian UFOlogist*, Bimonthly

In attempting to produce this classification in time for the conference no time was available for the author to check for errors in the paper even though these were known to exist. Subsequently, a peer review was undertaken by Brett Raines who reminded the author that Article 29.2 of the ICZN, requires that all zoological family names end with the suffix "idae". This meant that a family name had to be found for that group of extraterrestrials that closely resembled, in some respects, the anatomy of the hominids. Since "Hominoidea" would be a homonym of "Hominoidea", which is the superfamily for the Great Apes, a name had to be devised that would adequately address the morphology of these species that so much resemble Hominids. Brett Raines suggested "Juxtahominidae" which was accepted by the author and so appears for the first time in this publication. Brett Raines also recommended that to keep the suffix genders correct in six extraterrestrial species named in the paper the following changes should be made:

Homoides roswellii to *Homoides roswellensis*,
Rufogigus peregrinus to *Rufogigas peregrinus*,
Polioderma gigusoculus to *Polioderma gigasoculus*,
Antipygmaes verrucafrons to *Antipygmaeus verrucafrons*,
Basiliscus spinacalva to *Basiliscus spinacalvus*, and
Pseudorana tridactylos to *Pseudorana tridactyla*.

These were also accepted by the author and so appear below.

A Classification of Extraterrestrials Based on Contact Accounts.

Kingdom; Animalides, Phylum; Chordatides, Class; Mammalides, Order; Primatides
Family: Juxtahominidae.

Elegant Humanoid

Pseudohomo concinnus
(Elegant False Man)

Recorded 25 November 1896 at Lodi, California, USA by Colonel H.G. Shaw and Camille Spooner. A 2m tall lightweight humanoid with a narrow, elegant body, a large head, large eyes, small nose, mouth and ears, delicate 5 fingered hands, all portions of the head and body covered with a soft, downy, neat fur and a warbling voice. Technology included a hovering cigar-shaped craft, bright egg-shaped hand-held lamps and a bag with a nozzle frequently applied to the nose as if to help with breathing. Three individuals observed swaying back and forth trying unsuccessfully to pick up the witnesses before floating into a door on the side of their craft and departing.

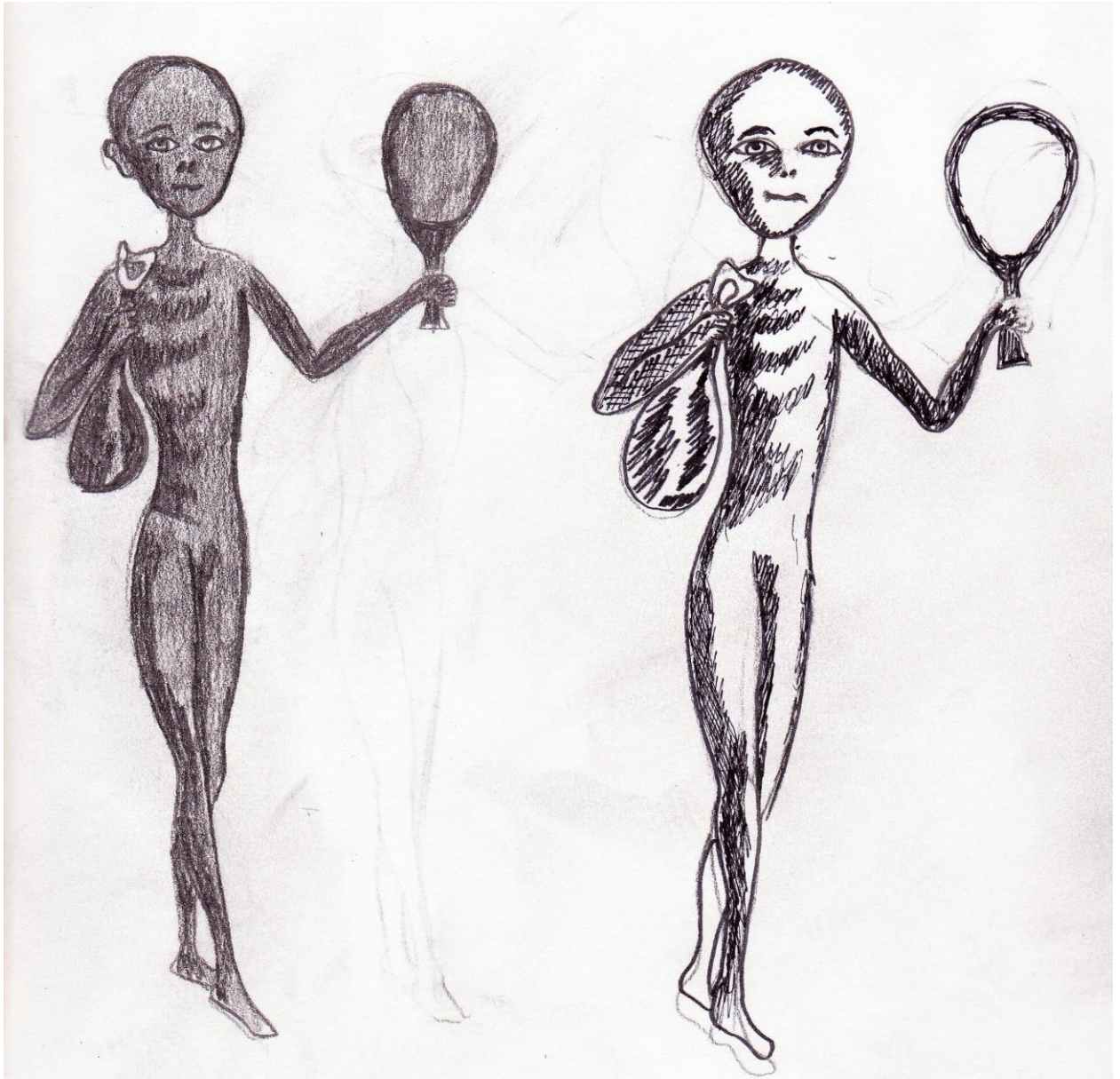


Plate 1: Elegant Humanoid (*Pseudohomo concinnus*) recorded in 1896 in California, USA, by Colonel H.G. Shaw and Camille Spooner. This image drawn by David Sheffield and is directly based on an image drawn by Harry Trumbore in the book *The Field Guide to Extraterrestrials*, written by Patrick Huyghe and published by Avon Books, 1996.

Roswell Humanoid

Homoides roswellensis

(Roswell Resembling Man)

First published description by Corso, Philip J. and Birnes, William J. 1997, *The Day After Roswell*, Pocket Books, Simon & Schuster Inc., New York, USA, detailing the discovery of intelligent extraterrestrial life forms and the retrieval of a crashed spacecraft in 1947 in New Mexico. Recorded 4 July 1947 at Roswell, New Mexico, USA by W. Curry Holden, archaeologist and Glen Dennis, mortician, among others. A 1.5 m tall humanoid with a large bald head, small, sunken eyes, small concave nose with 2 nostrils, thin lipless mouth devoid of teeth but with tough gums and an ear hole on each side of the head with a tiny lob. The longest part of the arm is between the elbow and the wrist and the hand has 4 long slender fingers with a small hollow at the tip of each creating a suction pad. At 11.30 pm an aircraft of this species was observed to crash and 3 bodies obtained, a female of which was dissected by medical experts and

the film of the autopsy shown publicly 50 years later. Mac Brazel, ranch manager also found debris from the crash on the J.B. Foster Ranch.

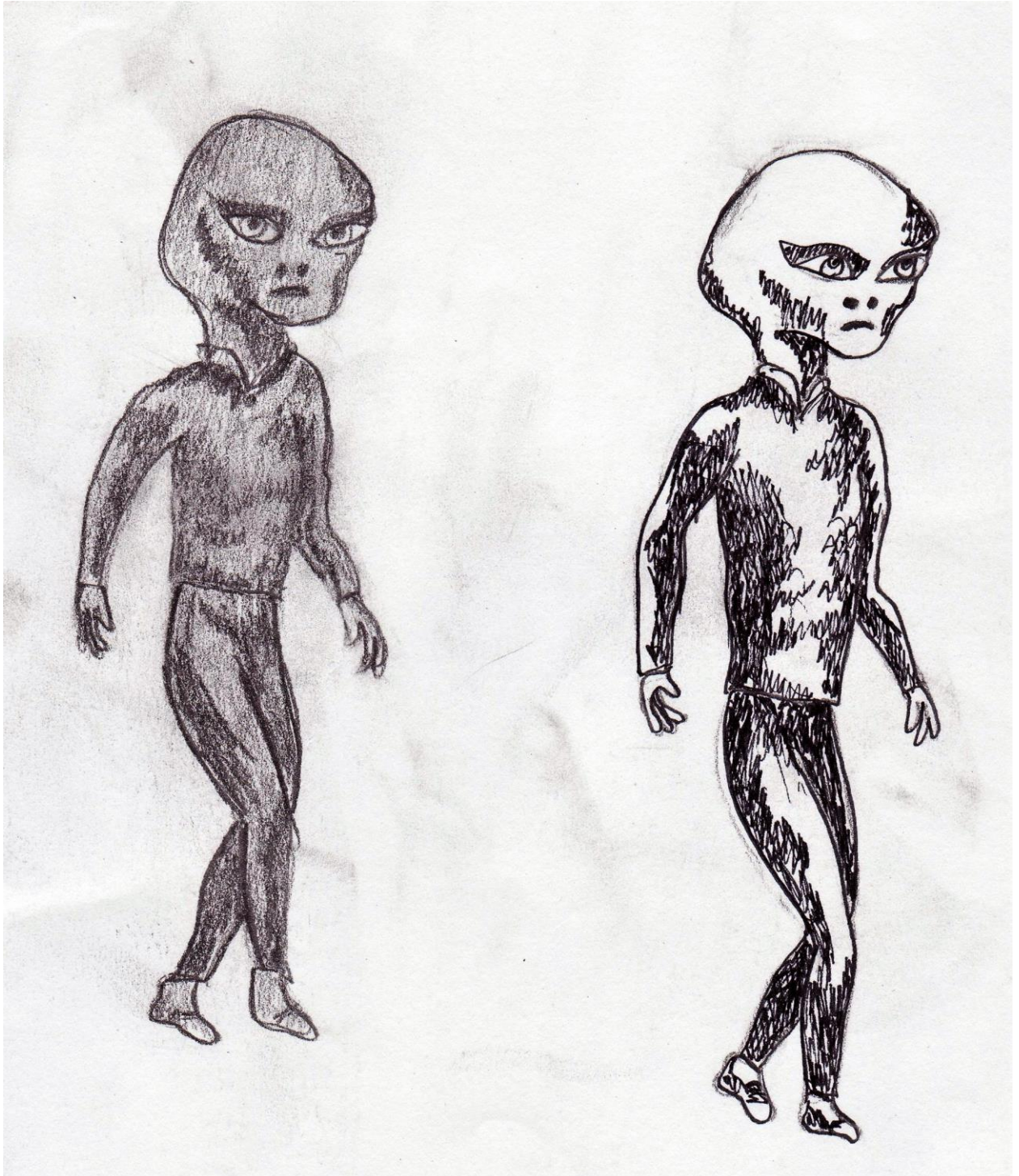


Plate 2: Roswell Humanoid (*Homoides roswellensis*) recorded in 1947 in Roswell, New Mexico, USA, recorded by archaeologist W. Curry Holden, mortician Glen Dennis and Colonel Philip J. Corso. This image drawn by David Sheffield and is directly based on an image drawn by Harry Trumbore in the book *The Field Guide to Extraterrestrials*, written by Patrick Huyghe and published by Avon Books, 1996.

Little Green Humanoid

Viridenanus octodactylus

(Eight-fingered Green Dwarf)

Recorded 14 August 1947 at on the Chiarso River near Villa Santina, Friuli, Italy, by Professor Rapuzzi Johannis, Geologist and anthropologist. A 90-centimetre-tall humanoid with a large hairless, earthy-green skinned head, large yellow-green hemispherical, protruding eyes with vertical pupils, no eyebrows or eye lashes and ring-like yellow-green eyelids at the base of the eye. The face is dominated by a large long, geometrically-cut, straight nose and the mouth is a slit, shaped like a circumflex accent and which continually opens and closes fish-like. The chest quivers during breathing and the hands each have eight opposable jointless green digits. Two individuals were observed wearing dark brown tight-fitting caps, dark blue translucent clothing with red collar, cuffs, foot ware and belt. They were standing on a rocky riverbank adjacent a red lens-shaped craft ten metres wide and six metres high with a low central cupola without apertures at the tip of which rose a shiny metallic, telescopic antenna.

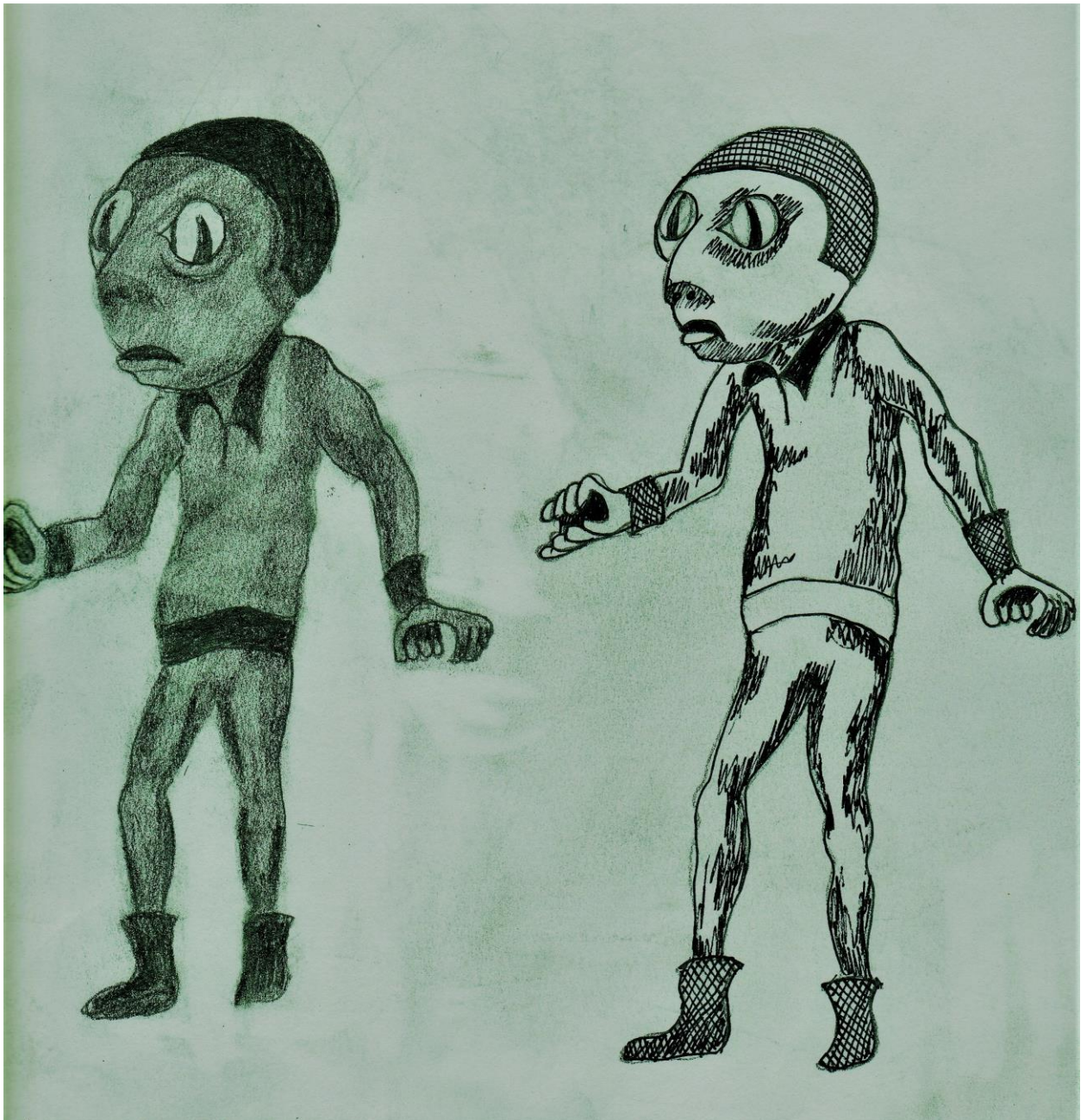


Plate 3: Little Green Humanoid (*Viridenanus octodactylus*) recorded in 1947 at the Chiarso

River, in Friuli, Italy and recorded by anthropologist and geologist Professor Rapuzzi Johannis. This image drawn by David Sheffield and is directly based on an image drawn by Harry Trumbore in the book *The Field Guide to Extraterrestrials*, written by Patrick Huyghe and published by Avon Books, 1996.

Insect-eyed Grey
Canutus cuteoculus
(Insect-eyed Grey)

Recorded 15 May 1951 at Salzburg, Austria. A 1.5-metre tall white-skinned Gray-like humanoid with a large-skulled, cylindrical, hairless head with a very high forehead and large compound eyes like that of an insect. The ears and nose are small holes and the mouth a small slit. Technology includes a 45-metre wide saucer-shaped craft, a pencil-shaped paralysing devise that makes a clicking sound when activated and an antigravity square black plate that can be strapped on.



Plate 4: Insect-eyed Gray (*Canutus cuteoculus*) recorded in 1951 in Salzburg, Austria. This image drawn by David Sheffield and is directly based on an image drawn by Harry Trumbore in the book *The Field Guide to Extraterrestrials*, written by Patrick Huyghe and published by Avon

Books, 1996.

Dwarf Humanoid

Homonanus denticulatus

(Finely-toothed Dwarf Man)

Recorded 1 November 1954 at Cennina, Arezzo, Italy by Rosa Lotti. A 1-metre tall dwarf humanoid very much like a pygmy human with normal features including short white teeth. Two individuals wearing grey clothing, leather-like helmets and standing adjacent a spindle-shaped 2-metre high craft of leather-coloured metal with a glass-like door with 2 small seats and controls visible within.



Plate 5: Dwarf Humanoid (*Homonanus denticulatus*) recorded in 1954 in Arezzo, Italy recorded by Rosa Lotti. This image drawn by David Sheffield and is directly based on an image drawn by Harry Trumbore in the book *The Field Guide to Extraterrestrials*, written by Patrick Huyghe and published by Avon Books, 1996.

Red Giant

Rufogigas peregrinus

(Strange Red Giant)

Recorded 12 September 1952 at Flatwoods, West Virginia, USA by Kathleen, Eddy and Fred May, Gene Lemon, Neil Nunley, Ronnie Shaver and Tommy Hyer. A 4-metre tall humanoid with a blood-red face, large greenish-orange eyes and three-fingered hands.



Plate 6: Red Giant (*Rufogigas peregrinus*) recorded 1952 in West Virginia, USA. This image drawn by David Sheffield and is directly based on an image drawn by Harry Trumbore in the book *The Field Guide to Extraterrestrials*, written by Patrick Huyghe and published by Avon Books, 1996.

Hairy Dwarf

Dasypumilus saetosus

(Bristly Hairy Dwarf)

Recorded 28 November 1954 at Caracas, Venezuela by Gustavo Gonzales and Jose Ponce.

A 1-metre tall dwarf animalian that does not wear clothes, is completely covered in stiff bristly hair and has three-clawed hands and feet. Technology includes a 3-metre wide spherical craft with an opening in the side and a small tube that emits a laser-like light. Three individuals observed carrying rocks or lumps of dirt to their vehicle. Gustavo Gonzales picked up one of the hairy dwarfs and found it to be very lightweight but with a very hard strong body and was tossed aside by the dwarf.

Sharp-chinned Humanoid

Decorhomo acutomaxilla

(Sharp-jawed Beautiful Man)

Recorded 15 October 1957 at Sao Francisco de Sales, Minas Gerais, Brazil by Antonio Villas-Boas, farmer. A 1.5-metre tall human-like humanoid with a wide face, blond hair, blue eyes that are longer than they are wide and slanted outward, a straight nose, high cheeks and a pointed chin. Five individuals observed, four of which communicated among themselves with slowly emitted growls and barks. These wore very tight-fitting, soft, thick, grey, unevenly-striped spacesuits including gloves, thick-soled shoes and a helmet with lens-like windows and three tubes extended from the top down to the ribcage. Their uniform included a belt with a breast strap and a breast badge. Technology included an egg-shaped craft 10.5 metres long by 7 metres wide with a rotating cupola and tripod legs.

Grey

Polioderma gigasoculus

(Big-eyed Grey Skin)

Recorded 19 September 1961 at Lancaster, New Hampshire, USA by Betty and Barney Hill.

A 1.5-metre-tall hairless, grey-skinned humanoid with a broad forehead, a round face that tapers towards the chin and large black, wrap-around eyes. The species has two slits for nostrils and a horizontal slit for a mouth. The lips have no muscles, they are slightly parted when communicating and within the mouth there is a membrane that flutters that helps to produce the humming, mumbling sound that is their voice.

This species appears to have several races including short Greys and tall Greys and interact with humans more often than the other species, particularly during the last couple of decades. The Greys that abducted Betty and Barney Hill wore dark coloured uniforms consisting of trousers and short jackets without zippers or buttons, and low, slip-on boots. The leader wore a cap and a black scarf over his shoulder. Other reports include naked Greys and individuals wearing cloaks and hoods. Technology includes discs, spheres, egg-shaped and cigar-shaped craft.

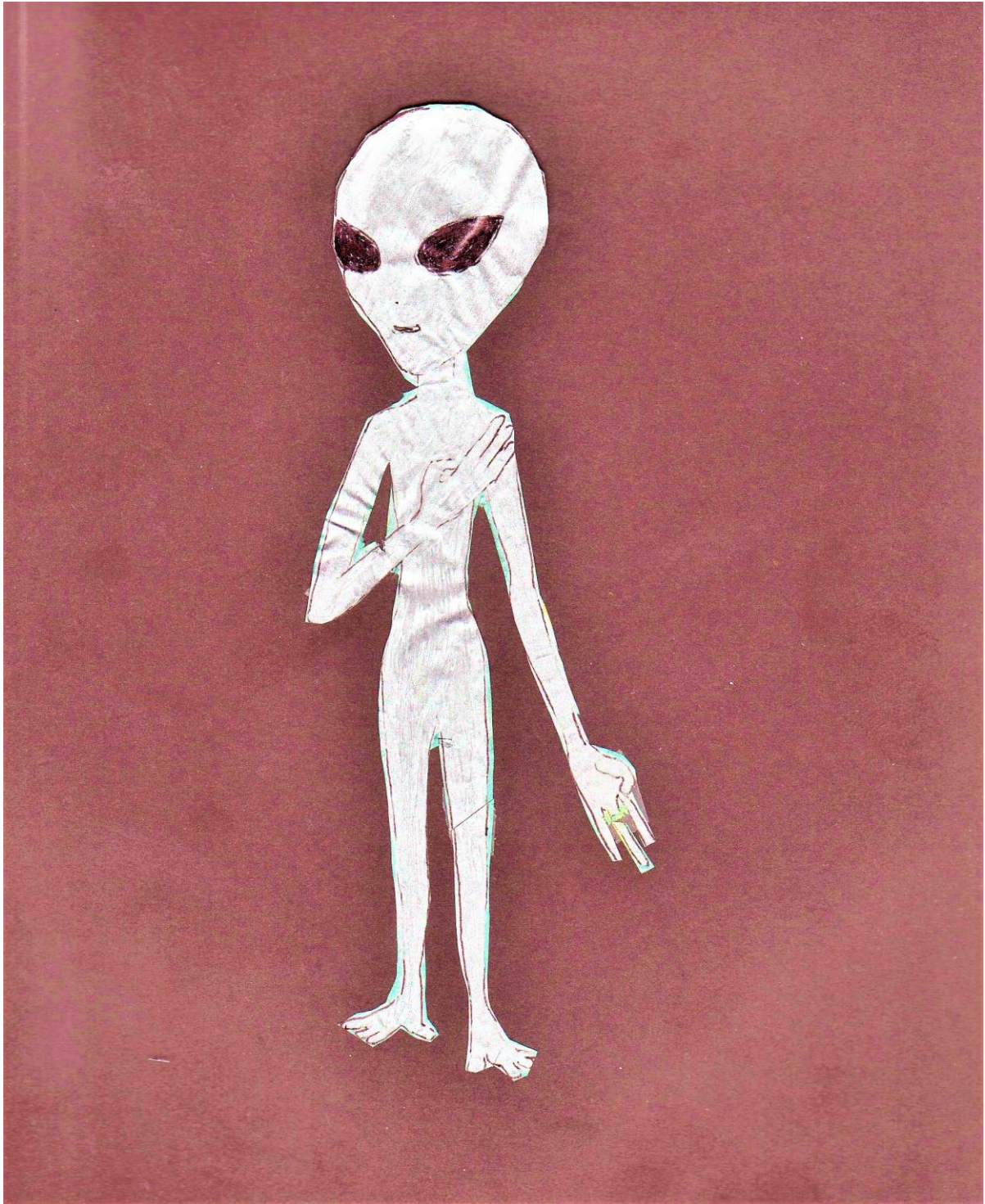


Plate 7: Grey (*Polioderma gigasoculus*) recorded on 19 September 1961 at Lancaster, New Hampshire, USA by Betty and Barney Hill. Illustration by Gary Opit.

Nordic

Speciosahomo flavus

(Blond-haired Attractive Man)

Recorded 1975 at La Junta, Colorado, USA. A 2-metre humanoid with a Scandinavian / Nordic appearance though with very white, almost translucent skin, long blond hair and blond eyelashes. There may be several races of this species. Very human-like species dominated contact reports up to and including the 1940's, 1950's, 1960's and the 1970's. It is also possible that these individuals are human (*Homo sapiens*) that have been abducted, bred and inducted into the

community of another species such as the Grey (*Polioderma gigasoculus*) and / or the Roswell Humanoid (*Homoides roswellensis*).



Plate 8: Nordic (*Speciosahomo flavus*) recorded in 1975 in Colorado, USA. This image drawn by David Sheffield and is directly based on an image drawn by Harry Trumbore in the book *The Field Guide to Extraterrestrials*, written by Patrick Huyghe and published by Avon Books, 1996.

Cyclops

Macrohomo unuoculus

(One-eyed Giant Man)

Recorded 28 August 1963 at Belo Horizonte, Minas Gerais, Brazil by Fernando and Ronaldo Eustaquio Gualberto and Jose Marcos Gomes Vidal. A 3-metre tall single eyed giant humanoid. The large, dark round eye has what appears to be an eyebrow above it. The face has a reddish tint. Four individuals wearing space suits and clear helmets, each seated on one-legged stools, observed within a 3-metre wide transparent spherical craft. One had long, pulled back blond hair and appeared to be female. Three individuals were bald and appeared to be males. One male approached the witnesses and spoke in a loud incomprehensible voice.

Wrinkle-faced Humanoid

Antipygmaeus verrucafrons

(Wrinkle-faced Equivalent to a Pygmy)

Recorded 2 November 1967 at Ririe, Idaho, USA by Guy Tossie and Will Begay.

A 1-metre tall humanoid with a distinctive wrinkled, creased, heavily pitted face, small round eyes and large ears high on a hairless head. There is no noticeable nose and the mouth is a small slit. Technology includes a domed disc-shaped craft 2.5 metres in diameter.

Big Head Humanoid

Capitohomo amplumentum

(Large-chinned Big-headed Man)

Recorded 28 August 1972 at Bahia Blanca, Buenos Aires, Argentina by Eduardo Fernando Dedeu, motor mechanic. A 2-metre tall humanoid of robust build with an elongated chin that almost reaches the middle of the chest. Sightings of this species in connection with UFOs continued for 7 months in Argentina and then the species was recorded in the United States in 1994.



Plate 9: Big Head Humanoid (*Capitohomo amplumentum*) recorded in 1954 in Buenos Aires, Argentina. This image drawn by David Sheffield and is directly based on an image drawn by Harry Trumbore in the book *The Field Guide to Extraterrestrials*, written by Patrick Huyghe and published by Avon Books, 1996.

Large-eared Hairy Humanoid

Pilosahomo auritus

(Large-eared Hairy Man)

Recorded December 1974 at Frederic, Wisconsin, USA by William Bosak.

A 1.8-metre tall humanoid with large, calf-like ears protruding horizontally from the head. The slender body and head are covered with reddish-brown fur except for the flat hairless face which has human-like, though protruding, eyes, nostrils and mouth. A single individual within a 2-metre wide disc-shaped craft with a curved glass-like front.

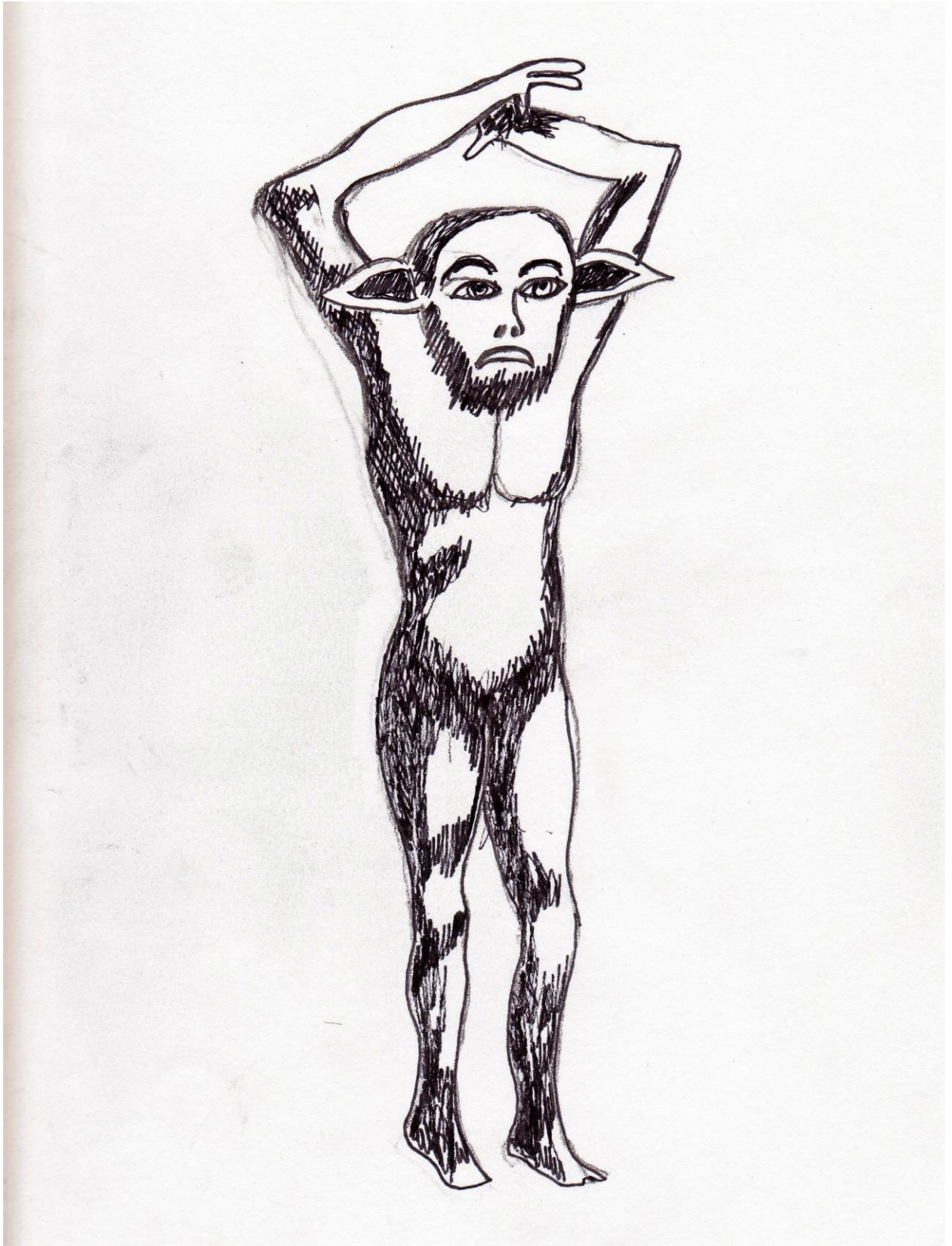


Plate 10: Large-eared Hairy Humanoid (*Pilosahomo auritus*) recorded in 1974 in Wisconsin, USA. This image drawn by David Sheffield and is directly based on an image drawn by Harry Trumbore in the book *The Field Guide to Extraterrestrials*, written by Patrick Huyghe and published by Avon Books, 1996.

Black Grey

Capitogriseus moros

(Big-headed Grey Son of the Night)

Recorded 8 August 1993 at Belgrave, Victoria, Australia by Kelly Cahill. A 2-metres tall humanoid with grey-black skin, large head, long thin arms and a bulging abdomen. There is a recording of this species from Leicester, England in the summer of 1928.

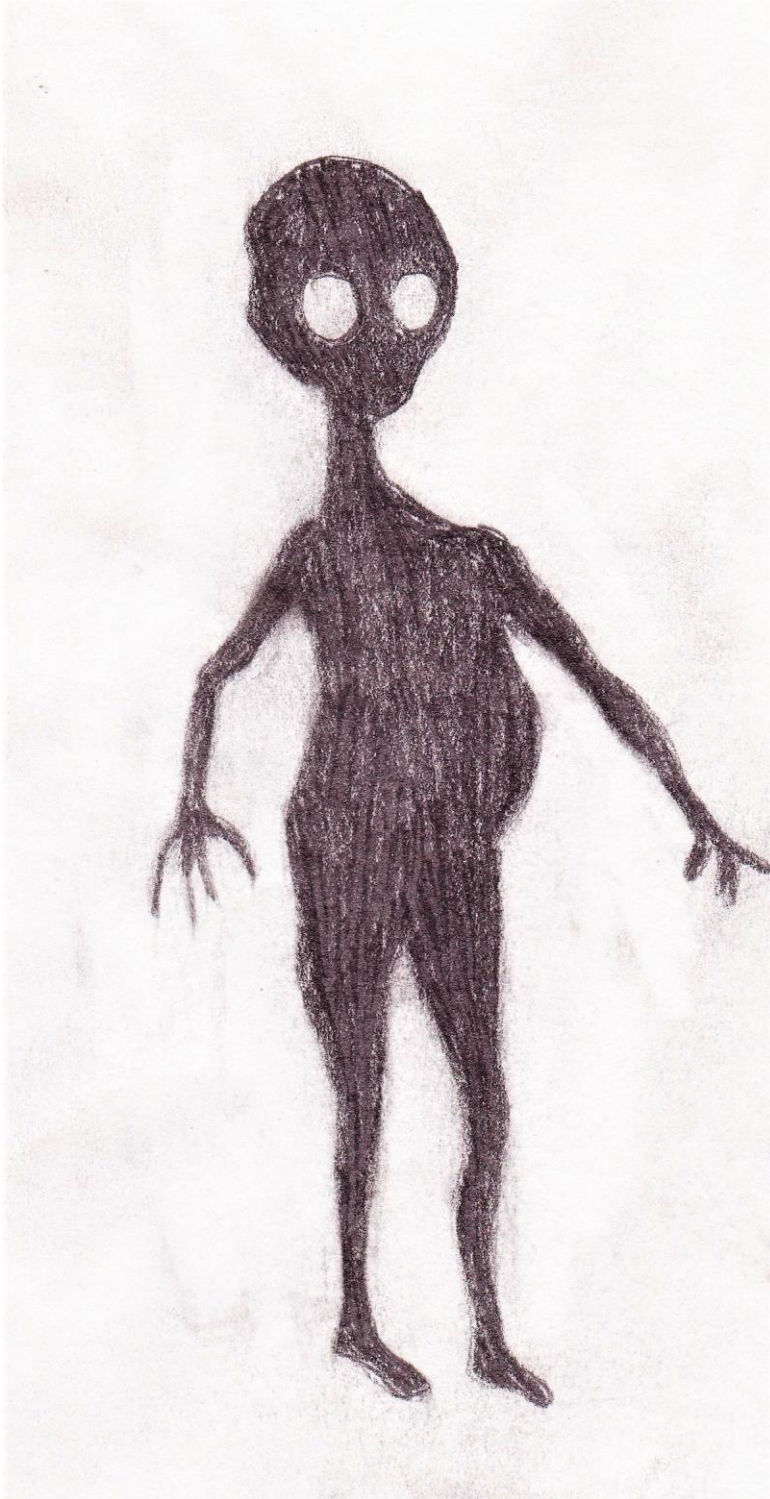


Plate 11: Black Gray (*Capitogriseus moros*) recorded 1993 in Victoria, Australia recorded by Kelly Cahill. This image drawn by David Sheffield and is directly based on an image drawn by Harry Trumbore in the book *The Field Guide to Extraterrestrials*, written by Patrick Huyghe and

published by Avon Books, 1996.

Kingdom; Animalides, Phylum; Chordatides, Class; Mammalides, Order and Family not yet classifiable.

Octolimb

Octiartus proselytus

(Strange Eight-limbed)

Recorded 22 August 1955 at Riverside, California by Kermit Douglas and seven other children. A 1-metre tall exotic species with two forearms emerging at the elbow of each arm and four legs protruding from the hips. The eyes and mouth are large and red in colour and between them are four diamond-shaped nostrils. Technology includes silver disc-like craft.

Goblin

Pygmaeus mirus

(Extraordinary Pygmy)

Recorded 21 August 1955 at Kelly, Kentucky by Billy Ray Taylor, Lucky Sutton and family. A 1-metre tall goblin-like animalian that does not wear clothes, stands on its hind legs and drops to all fours when it runs. It has a round, oversized bald, head with very large elephantine ears, large yellow eyes set halfway around the side of its face and a slit-like mouth that extends from ear to ear. The arms are almost twice as long as the legs and almost reach the ground. The hands have 4 claw-like elongated digits and the foot has 3 toes. There is almost no neck and the skin is silver in colour.

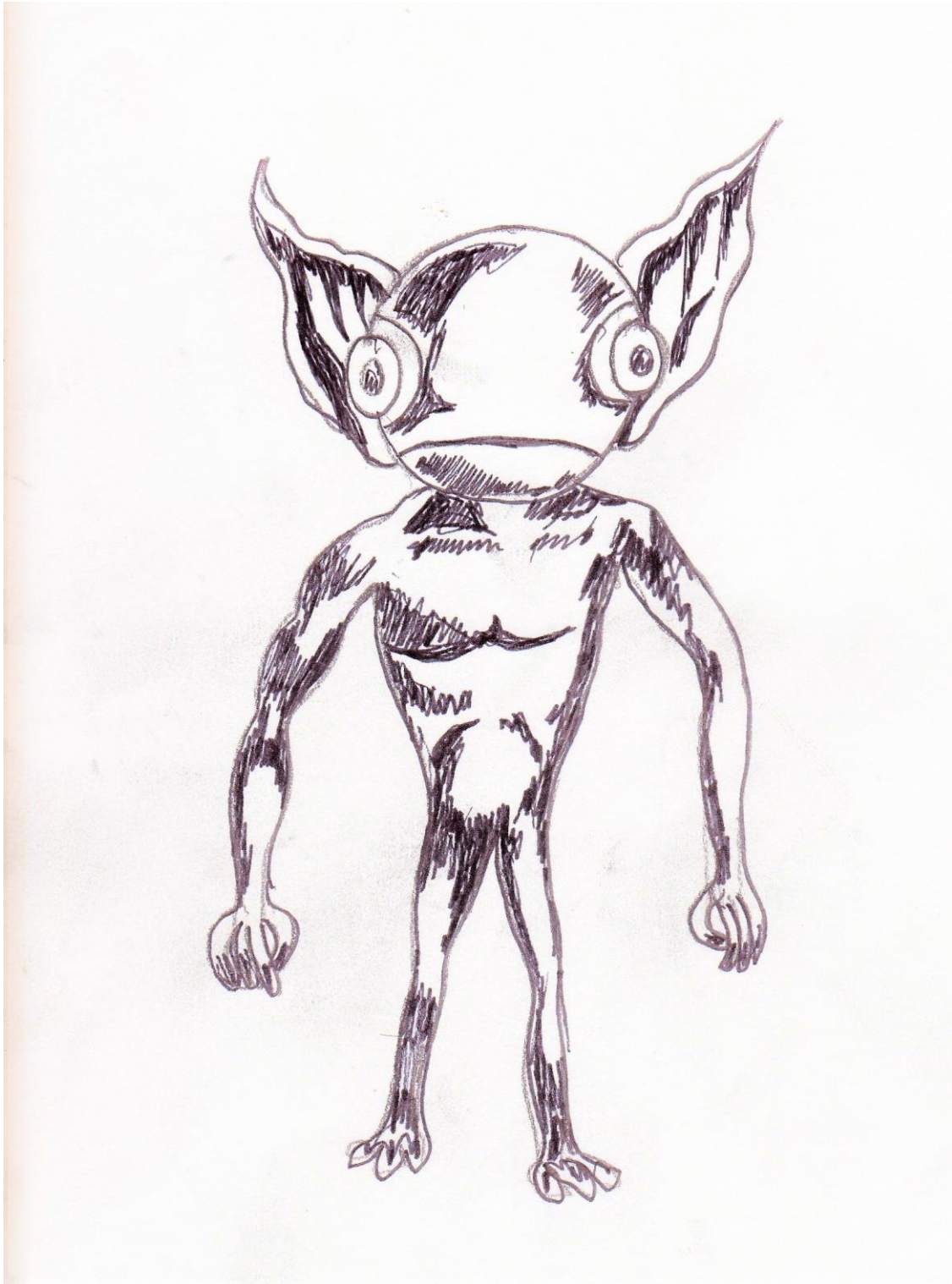


Plate 12: Goblin (*Pygmaeus mirus*) recorded 1955 in Kentucky, USA. This image drawn by David Sheffield and is directly based on an image drawn by Harry Trumbore in the book *The Field Guide to Extraterrestrials*, written by Patrick Huyghe and published by Avon Books, 1996.

Mothman

Papiliohomo volucer

(Flying Creature Moth Man)

Recorded 16 November 1963 at Hythe, Kent, England by John Flaxton and Mervyn Hutchinson. A 1.5-metre high winged animalian with a small head and webbed feet. Footprints measured 610 mm by 230 mm (2 feet by 9 inches). Three years later further observations were made of this

species in the Ohio River Valley, USA where newsmen named it “Mothman”. One observer stated that it has red eyes.



Plate 13: Mothman (*Papiliohomo volucer*) recorded 1963 in Kent, England by John Flaxton and Mervyn Hutchinson. This image drawn by David Sheffield and is directly based on an image drawn by Harry Trumbore in the book *The Field Guide to Extraterrestrials*, written by Patrick Huyghe and published by Avon Books, 1996.

Kingdom; Animalides, Phylum; Chordatides, Class; Reptilides, Order and Family not yet classifiable.

Spiny Reptoid

Basiliscus spinacalvus

(Spiny-skull Snake-lizard)

Recorded 6 December 1978 at Marzano, Genoa, Italy by Fortunato Zanfretta, nightwatchman. A 3-metre tall dark green reptoid with a 610 mm (2 feet) wide face with two large triangular yellow eyes, their outer corners inclined upwards and a large mouth. On either side of the head are 2 large horns, possibly ears, and the sides of the head are ornamented with large spines. The forehead has luminous irregular wrinkles that may be a third eye. The body is a mass of dark grey horizontal folds. Technology includes a huge triangular craft.



Plate 14: Spiny Reptoid (*Basiliscus spinacalvus*) recorded in 1978 in Genoa, Italy, recorded by nightwatchman Fortunato Zanfretta. This image drawn by David Sheffield and is directly based on an image drawn by Harry Trumbore in the book *The Field Guide to Extraterrestrials*, written by Patrick Huyghe and published by Avon Books, 1996.

Lizard Man or Reptoid

Reptilishomo viridis

(Green Lizard Man)

Recorded July 1983 at Mount Vernon, Missouri, USA by Ron and Paula Watson, farmers. A 2-metre tall green-skinned reptoid with large eyes with vertical pupils. The feet and hands are webbed. Technology included a cone-shaped craft with a mirror-like surface that reflected its surroundings so that it was almost invisible. Along with two silver-suited beings that were abducting a cow was a big-foot like creature with yellow vertical slits in round green eyes. This or a similar species is regularly recorded interacting with humans and Greys.

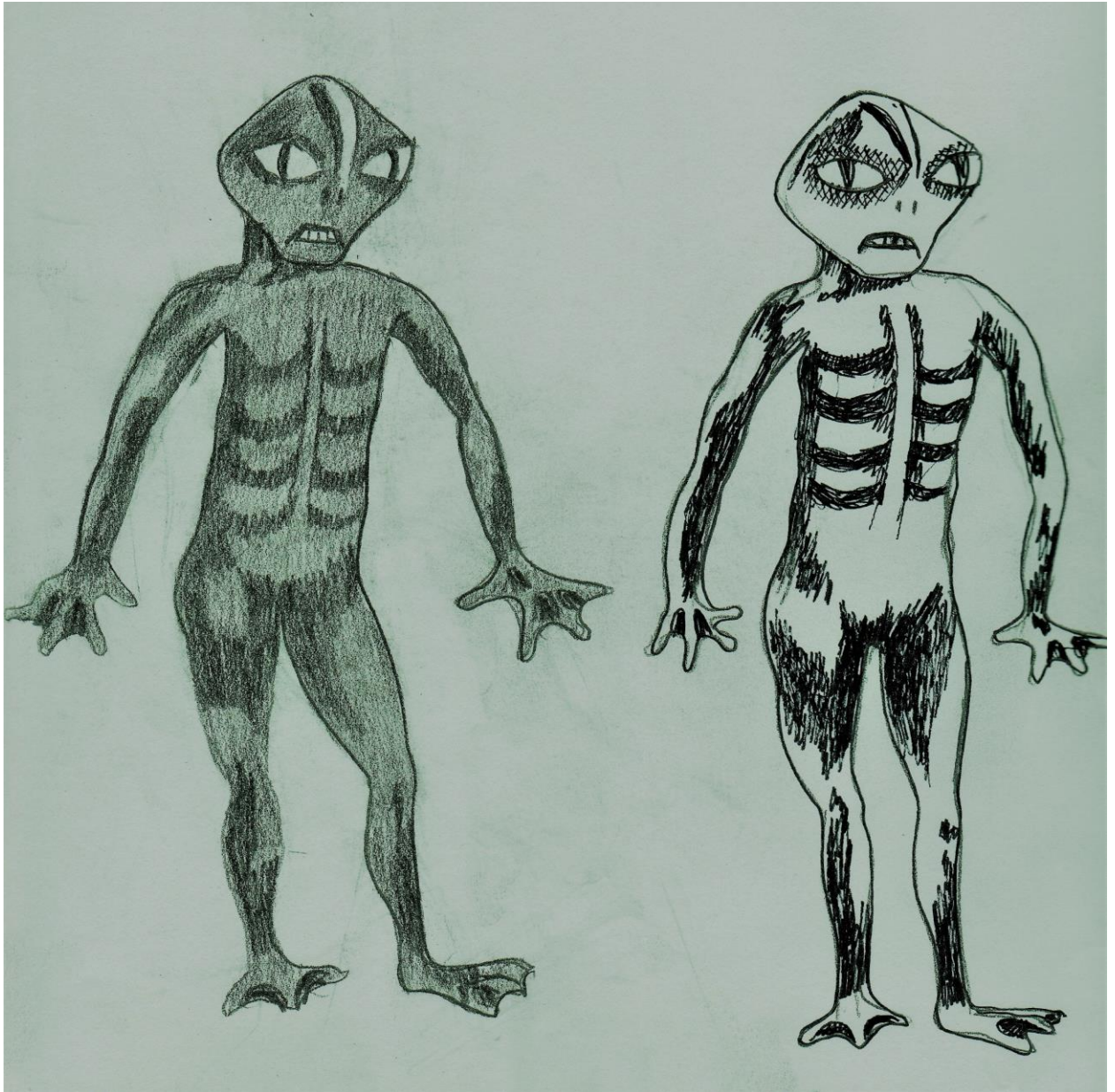


Plate 15: Lizard Man (*Reptilishomo viridis*) recorded in 1983 in Missouri, USA, recorded by farmers Ron and Paula Watson. This image drawn by David Sheffield and is directly based on an image drawn by Harry Trumbore in the book *The Field Guide to Extraterrestrials*, written by Patrick Huyghe and published by Avon Books, 1996.

Kingdom; Animalides, Phylum; Chordatides, Class; Amphibides, Order and Family not yet classifiable.

Frogman

Pseudorana tridactyla

(Three toed False Frog)

Recorded 24 September 1951 at Orland Park, Illinois by Harrison E. Bailey, Steelworker.

A half-metre tall bipedal frog-like amphibian with smooth, brown, striped skin. The prominent eyes curve around the side of the head, there are three digits on hands and feet and the individuals communicate with high-pitched wild duck-like calls. Many 25mm long black beetle-like companions followed the bipedal frog-like individuals and they clustered around the witness, jumping up to touch his hips and upper body. Within their bus-sized craft were two individuals 1.7 metres tall with bizarre flattened faces wearing green-tinted face shields. Bailey claimed that he was revisited by this species in 1977 and 1978.



Plate 16: Frogman (*Pseudorana tridactyla*) recorded in 1951 in Illinois, USA by steelworker Harrison E. Bailey. This image drawn by David Sheffield and is directly based on an image drawn by Harry Trumbore in the book *The Field Guide to Extraterrestrials*, written by Patrick Huyghe and published by Avon Books, 1996.

Kingdom; Animalides, Phylum, Class, Order and Family not yet classifiable.

Mantis

Doctagryllus tegimen

(Armoured Clever Cricket)

Recorded in 1973 at Cookville, Maryland, USA by Mike Shea, lawyer.

A 2-metre tall preying mantis-like species that some researchers believe to be an insectoid whilst others believe it to be a mammal-like species that has evolved a tall preying mantis-like shape. Mike Shea's description of this species is that they looked like grasshoppers with long arms and bowed legs, dressed in black, plastic-like armour, with a black face and wearing a black helmet with a line down the middle that came to a point. If it is insectoid the armour and helmet may be its exoskeleton. This species has been observed associating with other species such as Greys and involved with abductions. Abductees report that this species makes a distinctive clicking with its fingers.



Plate 17: Mantis (*Doctagryllus tegimen*) recorded in 1973 in Maryland, USA by lawyer Mike Shea. This image drawn by David Sheffield and is directly based on an image drawn by Harry

Trumbore in the book *The Field Guide to Extraterrestrials*, written by Patrick Huyghe and published by Avon Books, 1996.

Blob

Amoebagigas deformis

(Shapeless Giant Amoeba)

Recorded 20 December 1958 at Domesten, Kristianstad, Sweden by Stig Rydberg and Hans Gustafsson. A 1-metre tall intelligent giant amoeba-like exotic species, blue-grey in colour with two black dot-like eyes and filled with what looks like blood corpuscles. This species does not possess limbs and moves by bouncing, the outer surface has a powerful suction-like ability which it uses to grasp objects. A distinctive odour is noticeable and has been described as a combination of ether and burnt sausage meat. Technology includes a disc-shaped craft 3.5 metres across and 1 metre high resting on a tripod.

References

Huyghe, P. & Trumbore, H. 1996 *The Field Guide to Extraterrestrials*, Avon Books, NY, USA

We cannot hope to understand extraterrestrials unless we can understand ourselves and our place within the universe. Being as much a natural part of the universe as ourselves, every advance that we make in the understanding of ourselves will also be an advance in our understanding of extraterrestrials. For their existence and ours as come about because of the same natural laws of the universe that we are all subject too. So, from now on, everything that applies to us in the coming chapters will also apply to them. So, let us go forth to understand reality together.

Here we are, human beings, each trying to find our own place in this world, trying to live our lives to the best of our abilities while contending with the constantly changing circumstances that surround us. We did not ask to be here, as far as we can remember, and now we must get by as well as we can. Despite family and friends to help us, governments and religions, educational facilities and scientific examination of our situation, with an array of communication networks to convey this information, most of us are still pretty much confused as to what is really going on here.

What is the meaning of life and what are we doing here? What is our purpose and where are we going? Why are we born and why do we die, and, who are we anyway? Why do we live on the side of a great sphere? On a planet that travels through what appears to be an immensity of nothing, of vacant space.

We have discovered that we are a part of a gigantic and violent universe that appears to contain more suns than there are grains of sand on all the beaches of our world. The Hubble Space Telescope is revealing giant gas planets, somewhat like Jupiter, around some of our neighboring suns and it is very possible that smaller rocky planets, like Mars, Venus and Earth may be orbiting them. Yet our radio telescopes record no other communication amongst all that immensity. We appear to be alone.

Throughout the universe every other place is extremely life threatening except for here. The more that we look at the reality of our situation the more improbable it all seems. Our universe is of such mind-boggling proportions that it may well be infinite in space and time, and so complex and multi-dimensional that we are of almost no consequence.

Yet here we are, thinking away, male or female, and of ultimate importance to ourselves, and perhaps, to some of those around us. We know that we are a mind, a personality, that moves about and survives using our body. Each one of us are somewhat similar though quite unlike, at least not identical, to anybody else that we have ever met.

We may have met hundreds or even thousands of other human beings and yet no two looked quite alike or ever thought quite alike. However, someone else unfamiliar with your race, would at first, hardly be able to notice the difference between you all. With more familiarity, though, they too would recognize the endless differences, and this holds true with all species, for the varieties are infinite.

We think that we know ourselves well. We are all familiar with our own individual mind and body, roughly how it works and what its needs are. We appear to be a single conscious mind controlling a single body, but this is only a distant view, like the view of the planet Earth from the Moon. From there our world looks like a single, spherical body, predominantly blue, brown and white. From the Moon we can not tell what the Earth is composed of or whether it has any consciousness or intelligence. One may notice that tiny portions of it light up at night, and strange sounds emanate from it along various electromagnetic frequencies. We must take a close look before we can hope to ever begin to understand it. This is also true with your body and mind.

Your body is not a single organism at all, but is composed of enormous numbers of smaller, separate organisms of enormous variety. Like the self you are aware of, they have their own bodies and minds, their own lives to live, finding their own place in the world, their ecological niche in the environment of your body. They have their own jobs to do and their own methods of survival.

Their combined lives, their success and failures, are the sum of yourself. A close-up examination of every part of your body and mind will reveal them in their untold millions. You will find nothing except their handiwork. Living, eating, reproducing, growing, attacking and defending; building and dying; Your fate is theirs and their fate is yours.

They are the cells, the bacteria, the viruses, the micro flora and fauna that make up your body and mind in every possible way. You are not an entity with a single body and mind, but, in fact, you are millions of tiny entities with millions of tiny bodies and minds who are all living together. All that you can generally observe is the outside, living walls, which we call the skin. Flexible and impermeable walls built by the organisms within us to defend themselves against attack by the endless number of other organisms that surround us on all sides, and for the even more important purposes of respiration and temperature control.

Your conscious mind is part of this community, but you are virtually an outsider. Your conscious mind is somewhat like the guards and lookouts posted on a castle turret. Its job is to keep an eye out on what is going on around the castle, your body, watching for dangers; searching for the nearest food and water supplies; keeping an eye on the other castles and communicating with them and occasionally cleaning down the outsides.

We consciously examine the outside world but are never invited inside to see what is really going on. There are the multitude of organisms that comprise the body, having the times of their lives, feasting, fighting enemies, working together, reproducing, growing old; generation after generation. We are consciously, little more than a slave to them. Constantly shoveling in the food for their feasts, keeping the outside of the castle clean, disposing of the refuse they keep pouring down the drains and wondering about the occasional noises, movements, pains and other evidence that tells us that something funny is going on inside.

All these separate minute organisms live together to create the single entity that you regard yourself to be. If we look closely at the living world, we find that it also consists of vast numbers of separate living entities. The living surface of the Earth consists of plants and animals, including people, with all their clever inventions and technology, all of which are dependant on each other. When we look at the whole planet the plants, animals and people are a similar size to the living cells and the microbes that make up our own body.

The plants and animals form ecosystems that recycle nutrients like the way that our own individual bodies do. These ecosystems can be regarded as the planet's essential organs. The human societies, being irrefutably conscious, can be regarded as the planet's brain. Just as the combined populations of plants and animals create the planet's living body, so the combined populations of humanity create the planet's mind.

We are presently living during a most exciting epoch that may only occur once during the life time of a living world. As we have gone from living in separate villages to creating a global village wrapped in information super highways so the mind of our planet has evolved from separate interrelating, competing clusters to a planet-wide mind. The awakening of the planet's mind has begun.

However, this rapid change across the planet's surface has brought great problems because the

development of the technology necessary to create a global village has devastated the planet's living body with environmental destruction and pollution. Add overpopulation, greed for wealth and power and the wide - spread availability of nuclear weapons and we have the recipe for the destruction of our awakening planetary mind.

Humanity's most urgent responsibility at this time is to protect what we have created along with the body that supports it so that the future is ours to behold. The individual's most urgent responsibility is to comprehend what is occurring and campaign for the recognition of the awakening of the planet's mind. To do this we must all become aware.

To understand ourselves, our world and our universe, we must use our senses to observe our environment and use our minds to link the information together. This we do automatically so that we may orientate ourselves within our environment, to take advantage of those portions of it that allow us to survive. This is so natural to us that few of us rarely bother to examine these functions. Nor do we look clearly at our environment or our part in it; therefore, very valuable information is lost, and a great many suffer because of it.

To most of us the endless universe is ridiculously complex, and it is hard enough to get by in this world without having to try to understand how it all works and why it is like it is. The more we understand about the world around us the easier it will be for us to survive and one does not need to be a scientist or expert to try to work it out. The answers to all our questions are right before our eyes.

To begin, we must first be aware. We must be alert to our environment, notice what is happening around us, and then think about it. The complexity of our reality and our universe makes it necessary to break everything down into its most simple aspect. The first thing that we may notice as we look about is diversity. There are different kinds of animals and plants, rocks and soils, different kinds of people and occupations, vehicles, houses, cultures, religions, governments, etc. and it is by cataloguing these differences that we can identify and understand the world.

The opposite to differences is, of course, similarities. Noticing the similarities between everything, then, is the second step and is in fact of remarkable importance for it holds the key to understanding reality.

If we look for the similarities in the various things around us, including the living things, we can begin to understand how everything is related. Looking for similarities, instead of looking always for differences, we find that the entire universe and the reasons for our existence are connected.

Let us travel together now in search of the answer to all the great mysteries. They are not as difficult to discover as you may imagine.

Look at the similarities in the various kinds of plants. Notice how alike certain plants are to one another. In a short time, you can identify the family that a plant belongs to: Lichens, Mosses, Ferns, Palms, Pines, Lilies, Orchids and all the other flowering plants. The plants in each family are like each other and so relationships are observed.

The same is true of all the animals and once you begin looking at the similarities between them, you become aware of great families and relationships. We will notice that there are minute single celled animals and multiple celled animals. The multiple celled animals can be divided into invertebrates that have no backbone and vertebrate animals that do possess an internal skeleton. The vertebrates can further be divided into fish, amphibians (frogs, salamanders and newts), reptiles (lizards, snakes, turtles and crocodiles), birds and mammals.

The mammals, like all the other groups, can be further subdivided. We have egg laying monotremes (platypus and echidna), pouched marsupials (kangaroos, koalas, wombats, possums, quolls, numbats, devils, thylacines) and eutherians (shrews, rodents, antelope, cattle, deer, giraffe, horse, camel, sheep, cats, dogs, otters, seals, dolphins, whales, dugongs, manatees, elephants, rhinoceros, hippos, anteaters, sloths, bats, lemurs, monkeys, apes and people).

Looking for the similarities amongst humanity is most important if we wish to survive. To remedy the rapid decline of our environment, due to our sheer numbers and lack of awareness, we must put aside our old concepts of humanity, based on differences, and look instead for the similarities. By doing this you quickly realize how similar all humans are, how similar their races, religions, lifestyles, hopes, desires, aspirations and cultures.

Chapter Five the Principles of Science

It is perfectly natural to believe that we are single entities with our own mind and that is quite correct because we are the sum of everything that causes us to exist. However, our perception of the world and ourselves are naturally biased, because we see everything from our own viewpoint, from our own particular size, and from our own level of organization.

Although we are all individuals, we know that we cannot understand anything without an interrelating community that makes survival, civilization, and knowledge possible. Without the thousands of generations of humans that have preceded us, without our parents and teachers, our friends and enemies and the rest of humanity communicating and developing our societies we could not possibly be conscious individuals.

For as long as humans have been able to think and communicate there have been an endless variety of religions and philosophies attempting to explain what reality it all about. All of this understanding has come from a great number of people working in different fields and writing about their insights and discoveries. Various researchers have studied all these different works and tried to combine them into new concepts. That is exactly what this book is all about.

Let us take a journey together now through the published studies of a great range of the latest researchers in many different fields. Let us see what they have discovered and then we will put that information together to reveal what life is all about. We are about to embark on a journey together to awaken the planet's mind.

We will begin with a study that examines the basic concepts that the combined human mind has come up with. We will look at what the author has to say and then try to elaborate, referring the information to our everyday reality. In his book *The Dialectic Method of Thinking* Edmond Szekely states that ; 'If we bring them all down to their basics we discover that there are only two points of view, and that the entire history of human culture has been a struggle between these two concepts; the static world concept, and the dynamic world concept.

The static world concept maintains that change and evolution does not exist, that there is only the unchangeable absolute. Everything is either black or white by this concept, a thing either exists or it does not exist. (If it exists, it exists as it is, we must accept it as it is, without any change.)

This is the concept that dominates the lives of much of humanity, the concept of good and evil, us and them, you and I. Proponents of this concept believe that there is only one truth, eternal absolute truth, "my truth." All other truths are wrong because I know all and therefore, I do not need to search further. Everyone else must accept my truth without discussion, we must not experiment, we must accept what we have.'

This concept originates in the human mind when only the differences are observed, and the similarities are ignored. It is one-sided dogmatism. This is the concept that dominates many religions and most politics. It creates fanaticism and persecution in religions and war and terrorism in politics. Belief in this concept has the potential to exterminate humanity.

The dynamic world concept believes in change and evolution, that nothing is absolute. Everything is in a constant state of motion, everything changes, and everything is relative to everything else. All understanding and communication are generalizations. No black and white, but shades of grey. Not us and them, but you and I, humanity, and all other life forms living together to form reality and consciousness.

This concept originates in the human mind when similarities are observed, and differences are recognized as essential for the creation of diversity so that change and evolution can occur, and planetary consciousness appears.

Everything that exists is composed entirely of motion. There is no fixed point in the universe because everything is changing and moving. “The Principle of Motion”, coined by Heraclitus, forms the very basis of scientific thinking.

Science is an attitude and a method of examining reality using observation and experimentation. It uses inductive logic where a general truth can be comprehended by the study of the range of truths. It also uses deductive logic where a truth can be devised from a generally known truth. Information gained in this way can then be used to test one's ideas and pursue these ideas with a research design. Scientific knowledge is ascertained by observation and experimentation, critically tested, systematized, and brought under general principles.

The second general principle is that “the universal form of motion is radiation” and that everything that exists is radiation. The third principle is that of “quantitative numbers”, developed by Pythagoras and Galileo that states that nature is written in mathematical language and that all radiations may be calculated by mathematics and only by mathematics.

Next is the “Principle of Matter”, developed by Milikan, which states that matter is circular motion, in the form of radiation around a central point. Every solid object is entirely composed of molecules of atoms, the electrons of which are spinning around the central nucleus. Thus, this book and the table that it rests on or the hands that hold it are systems of many motions grouped around central points and held together by the play of interrelated forces. So, we are all composed of whirling motion.

Now we come to the “Principle of Energy”, developed by Oswald that states that energy is direct-line motion, in the form of radiation in a certain direction. In other words, straight motion is force while circular motion is matter. The metabolism of the universe then is the application of these two changes of motion.

Our planet Earth is a system which receives solar energy as an input and reflects light energy and radiates heat energy as outputs. The surface of our planet is alive because of the vast number of energy pathways created by the non-living environment and the living natural environment of animals and plants, through which energy is transported and where transformations occur.

Living and non-living matter absorb the light energy where it is converted to internal heat and then radiated back out as infrared heat energy. All matter at temperatures above absolute zero radiates electromagnetic energy, in other words all matter tends to lose heat. The temperature of the radiating objects determines which part of the electromagnetic spectrum carries the radiated energy and it ranges from the invisible shorter waves of X-rays, gamma rays and ultraviolet rays through the rainbow colours of visible light to the longer rays of infrared and radio.

With a surface temperature of about 6000K (11000 F) our sun, which is a star of medium mass and temperature when compared with the overall range of stars, radiates most strongly in the visible portion of the spectrum, however all other parts of the spectrum are also radiated. At normal earth temperatures though, objects radiate mostly in the infrared part of the spectrum. All this radiation travels at the uniform velocity of 300,000 km (186,000 miles) per second and it requires about nine and one third minutes to travel the 150 million kilometres (93 million miles) from the sun to the Earth.

Because our planet is rotating an energy balance is created so that the amount of energy coming in equals the amount of energy going out. Solar light energy striking that part of the earth facing the sun is absorbed and converted to heat while the shadowed part facing away from the sun radiates the heat back into space. The equatorial regions receive, through solar radiation, much more heat than is lost, whereas the polar-regions lose much more heat than is received.

All of this creates a turbulent atmosphere that acts as a heat transport mechanism serving to carry the excess heat of the equatorial belt to the polar regions, and so a heat balance is created. The movement of water through the turbulent atmosphere, as clouds of water vapor, falls upon the continents as rain, and the subsequent movement through the earth as streams and rivers returns the water to the oceans, creating a balance, and together these two great transport systems of energy and matter form a single grand planetary system that makes life possible.

We are a part of the essential biochemical energy cycle in which plants absorb solar energy along with water, carbon dioxide, oxygen and sixteen inorganic substances to manufacture carbohydrate compounds, which provide food for animals, such as ourselves. These compounds are recycled through animals and plants until they are oxidized in a process known as respiration, and the energy is returned to the atmosphere as heat.

Energy within an ecosystem passes through a series of transformations from one form of chemical energy to another in a one-way flow. A very high state of order and organisation, particularly on the biochemical level and spatial organisation at the cellular level, is needed for plants and animals to transform and pass the energy onwards. The maintenance of organic life requires a continual energy input which flows through the ecosystem.

The connecting link between humanity, all other life forms, earth, sun and the universe is the completely unified field of radiation. They all radiate and absorb energies, all of them making reciprocal exchanges of their various energies. When we look at ourselves, we find that we are really an organized system of radiation operating at the speed of light. We consist of millions of microscopic living cells in perpetual motion amongst a constant flow of matter and energy.

When we communicate with one another we propagate acoustic radiations in the voice box, amplifying and controlling the vibrations with the mouth. These sound waves penetrate the ear and arouse motions in the neurons of the brain. Our thoughts and ideas are currents of radiations. Radiant energy of the nerves causes us to respond by propagating more radiations through million of nerve cells (neurons) moving at great speed.

We live in a constant dynamic medium in which only motion exists. It can be said that things move rather than exist. We all consist of atomic molecular energies. We have our own magnetic currents. We are dependant on diverse temperatures, which tend to equalize themselves. These thermic radiations are essential for the biochemical energy cycles to operate. The optical and acoustic radiations give us sight and sound. We experience this as our everyday lives, coloured with our emotions and our desires.

Humans are not more important or special than everything else because we are all an integral part of the matter and energy transport systems that gives this planet life and consciousness. We are all organized systems of radiation operating at the speed of light. We are all radiating and absorbing energy and interchanging our energies with everything else. We are all nothing more and nothing less than motion.

To understand ourselves and all other phenomena we must find where we exist in time and space. To discover this, we must first try to understand exactly what time and space is and how everything correlates within this framework.

It was Einstein who developed the “Principle of Space”, the classical concept of which described space as an empty state or vacuum. However, there is no such thing as emptiness, and space, as with everything else, is constructed of motion. Space is the coexistence of radiation, one beside the other. A juxtaposition of diverse radiations, with a range of densities culminating with gases, liquids and solids.

This material is termed “plasma” and the universe consists almost entirely of plasma, about 99.9%. The Sun and all the other stars are balls of plasma, and the space between them are full of solar winds of electrically charged plasma, because plasma is an excellent conductor of electricity.

A lightning bolt is a streak of plasma and throughout the universe gigantic electric fields are arcing through the plasma causing plasma filaments a billion light years long. We exist in a highly charged universe where electrical magnetism has more influence than gravity.

Einstein also developed the “Principle of Time” which is the succession of different radiations one after the other. Our chronological time is based primarily on the motion of the Earth around the Sun, along with the motions of our neighboring planets and the motion of the Moon around the Earth.

Understanding the principles of motion, radiation, matter, energy, space and time are essential for our understanding of our reality. However, we must now have a look at the principles that tie all of this together.

First the “Principle of Causality”, developed by Hume, that states that every cause has its effect and every effect has its cause. Next comes the “Principle of the Variation of Causes”, developed by Stuart Mill, in which we must experiment if we wish to discover the exact cause and the exact effect of each phenomena. To do this we must vary the causes experimentally one after the other.

The next four principles were formulated by Engels and the first of these is the “Principle of Totality”, where we must examine everything in its totality and nothing separately as a part. This is of extreme importance, because we cannot really understand anything or make any correct decisions unless we look at the big picture.

The “Principles of Totality in Space and Totality in Time” are also essential to get a wider view of any problem because the significant value of one part always depends on what surrounds it in space and what will proceed from it.

The “Principle of Origin and Genealogy” is essential because we cannot understand any phenomena unless we examine its origins and genealogy, what preceded it and why.

Now we come to the “Principle of Relativity”, formulated by Einstein, which states that nothing is absolute, everything is relative and depends on everything else. Nothing can be measured or understood unless we compare it with everything else.

The last two principles that we must look at, both developed by Essenes, that finally ties all of reality together, is that of “Correlatively” and “Dialectics”. All phenomena depend on all other phenomena and each reciprocally completes the other. The whole mechanism of the universe is correlative. Correlative Dialectics is the science of the motion of the cosmic, solar, terrestrial and human radiations in all their combinations. The word dialectic pertains to the art of discussion, a branch of logic which teaches the rules and modes of reasoning.

The universe is built upon levels of organisation and the lowest level is that of the energetic vibrations that make up the subatomic particles. These join to form the next level, that of the atom. We know that everything material, including you and I, are built out of atoms which we imagine looking something like incredibly minute solar systems with the nucleus of the atom acting as the sun and the electrons orbiting around it like the planets. Except, of course, that there is nothing there but motion.

Now let us look at some basic information from Paul Weisz's book *The Science of Zoology*. It is not essential to study this next section in detail if you do not wish to. However, you should at least skim over it so that you get a basic understanding of the workings of the sub-atomic particles and how they go on to form atoms of different chemical elements including the organic compounds that create living cells.

The atomic nucleus at the centre of the atom consists of varying numbers of neutrons and protons, the latter having a positive electric charge hence its name; while the former is neutral and therefore has no electrical charge. There can be one or many electrons orbiting the nucleus and they always have a negative electric charge.

There are over one hundred different kinds of atoms and each is a chemical element. The fewer electrons orbiting the nucleus means the element will be light, the more orbiting electrons, the heavier the element, e.g. Hydrogen (lightest element) = 1 electron, Lead, (heavy) lots of electrons. This is known as the atomic weight of elements.

Atoms, unlike solar systems, don't just have one electron orbiting in each successive ring around the nucleus, they contain many. The first orbit or shell can take two electrons, the second and third orbits can take eight electrons each and there can be many more orbits or shells holding many more electrons. If all an atom's shells are complete with the maximum number of electrons then it is stable, and therefore chemically inert. If its shells are incomplete it is unstable and chemically active.

Helium gas has a single complete shell with two electrons. Because it is so simple and light, it will not chemically react, and is safe to use in gas balloons. Hydrogen, which also has only one shell, but contains only one electron, is also light and so will float in the heavier air, but it is unstable and chemically reactive. This was made so unfortunately clear when the air ship "Hindenburg" exploded.

The only other stable elements are neon with two complete rings, argon with three complete rings, krypton with four, Xenon with five and radon with six complete rings. These inert gases are the only atoms that are stable. All others have incomplete shells, which means that they are chemically reactive, which is a very good thing, because without them nothing would be happening in the universe.

Most kinds of atoms are unstable, and therefore active, and will behave in a manner that will cause them to be stable and generally un-reactive. Their incomplete outer shell will make them undergo chemical reactions, whereby atoms will transfer or share electrons and form ionic compounds with electro-valent bonds, or molecular compounds with covalent bonding. An example of this is common salt, where an atom of sodium has one electron too many, while an atom of chlorine has one electron too few. The unstable single electron in the third shell of the sodium atom then transfers over to the unstable collection of seven electrons in the third shell of the chlorine atom. Both will now have stable shells; sodium has two shells while chlorine has three.

Atoms that gain or lose electrons are called ions and the process is called ionization. Since electrons always carry negative electric charges the atom that gains an electron will be electro-negative and is

called a non-metal, while the atom that loses an electron will become electro-positive and is called a metal. Another well known example of the way different atoms combine is as follows.

When a couple of unstable atoms of hydrogen meet another unstable atom such as oxygen, which has a complete first shell of two electrons and an incomplete second shell of six electrons, then the atoms join together and transfer their electrons so that the two hydrogen electrons help to complete the second shell of the oxygen atom. This chemical bond then produces hydrogen oxide or what we more generally call water. Whenever unstable atoms join up to form stable compounds of atoms we have arrived at the next level or organisation in the universe, the compounds of non-living matter that make up much of the universe.

One particularly good place for all kinds of atoms and compounds to come together is in the oceans, where all kinds of elements are washed out of the rocky surface and dissolved together, which is why sea water tastes so salty. The atoms of most elements can only form a limited number of bonds with other atoms, but carbon atoms can form long chains sharing their electrons with other carbon atoms, or with hydrogen atoms. The carbon chains can be branched and can form rings and these chains can join up with others until exceedingly complex and varied molecular combinations can result.

These are then known as organic compounds, in which the main chemical bonds join two or more carbon atoms, or carbon and hydrogen atoms. Other atoms of oxygen and nitrogen can then join these carbon chains via the hydrogen atoms and these four elements make up ninety five percent of the weight of living cellular matter.

Thirty other elements contribute the remaining five percent of the weight. All these elements occur in the ocean, and in clay. This is where life probably originated, and our cells still reflect the composition of the sea, and the energy trapped in the clay.

We have now reached the next two levels of organisation in the universe, that of the simplest and most basic of all life forms; the viruses, bacteria and the organelles, which are the complex combinations of organic and inorganic compounds, that make up the organs of our living cells. The cell is a tiny piece of sea water separated from the rest of the environment by a semi-permeable membrane. The atoms within these cells are organized into precise locations for functions.

Cells contain hundreds of different classes of organic compounds, each cell using a base of hydrogen and carbon atoms. Four classes, that form the organic basis of living matter, are carbohydrates, lipids, proteins, and nucleotides, and are generally dissolved and suspended in cellular water. The most common are the simple sugars or mono saccharides, and the number of carbon atoms present dictate the kind of sugars, i.e. trioses, tetroses, pentoses, hexoses and heptoses. Other sugars are also formed including aldose, ketose, ribose, glucose (the most common of all sugars), and fructose.

If two or more of these chains of carbon, hydrogen, and oxygen atoms join, we get multiple sugars forming the polysaccharides. This method of large molecules being built up from smaller molecules is known as polymerization. Hundreds of thousands of glucose sugars form glycogen in animals and cellulose in plants. All these carbohydrates function as structural building blocks of the cellular substance and they are energy rich molecules suitable as fuels in respiration and are therefore important animal foods.

Fats and their derivative are known as lipids or fatty acids and like the sugars are composed of carbon, hydrogen and oxygen arranged in chains of various lengths. The simplest is formic acid which is a well-known protective fluid used by ants. A more complex chain is known as acetic acid, the active ingredient in vinegar, and cells synthesize fatty acids from acetic acid.

The properties of a fat are determined by the chain length and the degrees of saturation of the fatty acid present. Fats are saturated when all available bonds of the carbon chains are filled with hydrogen atoms and are unsaturated when they have one or more double bonds in the carbon chain, they then become polyunsaturated.

Fats and fatty acids are the most abundant food storage compounds in most animals, play significant roles as structural components of cells, are present in the cellular membrane controlling the movement of materials into and out of the cells and are an even richer source of respiratory energy than the carbohydrates.

Proteins are more complex compounds built up from the carbon chains and are called amino acids and cells typically contain twenty-three different types of amino acids. Thousands of amino acid compounds can join to form a single protein molecule and are among the largest chemical structures known and are essential for the phenomena known as life.

Amino acids link up using a peptide bond, many linked together form a polypeptide and can occur in practically unlimited fashion. They contain any or all the twenty-three different natural occurring types of amino acids, can contain any number of each type and the specific sequence in which they can join up is unrestricted.

Therefore, an enormously large number of polypeptide compounds can be constructed from the twenty-three types of amino acids and correspondingly the possible number of chemically different proteins possible are astronomical. Because of this, no two organisms of any kind have the same types of proteins.

A polypeptide chain with its particular sequence of amino acid units and its peptide bonds represent the primary structure of a protein. These chains form a spiral configuration held together by hydrogen bonds and they coil, loop, twist, and fold back upon one another until they form globules or bundles.

Proteins are used in cells as food but mainly serve in two, far more important roles, firstly as the vital construction materials out of which much of the basic framework of cells are built. Secondly, they serve as reaction - catalyzing enzymes which accelerate the chemical reactions that make life possible.

The chemicals discussed so far only endow a cell with the potential for life having a structure of proteins, of performing functions with the use of enzymes and of accumulating foods such as carbohydrates, lipids or fats. The organic compounds called nucleotides, composed of phosphate, pentose sugar and nitrogen base, make these potentials an actuality.

Nucleotides are building blocks of larger molecules, serve the crucial functions in cells as energy carriers or co-enzymes and form genetic systems. The energy carrier is adenosine triphosphate A.T.P., an energy rich product of respiration produced by the creation of a high energy bond between oxygen and phosphate.

A co-enzyme is a carrier molecule that temporarily joins with and accepts a group of atoms, often hydrogen, that needs to be removed from one compound and transferred to another during an enzyme accelerated metabolic decomposition reaction. Nucleic acids are polynucleotides, extended chains of up to thousands of joined nucleic acids, existing in two types, a ribose series and a deoxyribose series.

A chain of ribosides is called a ribose nucleic acid or R.N.A., while a chain of deoxyribosides is deoxyribose nucleic acid or D.N.A. In both types the sugar component of one nucleotide unit bonds to the phosphate component of the next in the chain.

Thus, the sugar and phosphate components form an extended molecular thread from which nitrogen atoms project as side chains. In D.N.A. The nucleic acid is a double chain of two parallel single chains held together by hydrogen bonds between pairs of nitrogen bases occurring in four different ways, adenine with thymine or the reverse and guanine with cytosine, or the reverse.

There is no limit to the number of times each of these combinations can occur nor is there is limit as to their sequences. The possible number of different D.N.A. therefore is virtually unlimited. D.N.A. provides the cell with instructions on how to manufacture specific proteins and therefore controls the entire structural and functional makeup of every cell.

D.N.A. can also undergo mutations where it becomes slightly but permanently altered in its nitrogen base content. This causes structural and functional changes in the cell and consequently a whole animal or plant and its progeny then can become changed in the course of successive generations which is equivalent to evolution. D.N.A. is the material that forms genes which are the carriers of heredity, and ultimately control all metabolism and self-perpetuation and are the basis of life.

The vast array of organic substances in cells are derived from only a half dozen or so fundamental types of compounds of atoms, mainly sugars, fatty acids, amino acids and nucleotides. Life then is built up from a number of limited fundamental construction units, yet the possible combinations and variations are virtually unlimited. The components interact and form a highly organized living system. These cells, very large number of them, now highly specialized to perform a vast number of special tasks thus constitute your entire being.

The various orders of life are based on the degree of organisation of their cells. Thus, there are single celled animals and plants living independently and which constitute the majority of living things. All other life forms are multi-cellular being composed of up to many trillions of joined cells. The simplest species consist of smaller numbers of cells and if all the cells are of the same kind, they form cellular colonies.

If two or more different kinds of cells exist in the same organism each kind of cell forms a tissue. Structurally more complex organisms contain several tissues and some of these tissues are further joined to become organs. The most complex organisms consist of many tissues and the organs develop into groups of organs and then organ systems and so the most complex animals like us are whole communities of cells divided into many kinds of tissues and organ systems.

The levels of organisation, however, continue, because then we find that these communities of cells existing together as individual entities known as plants and animals live in populations across the surface of the planet. These populations exhibit different levels so that the constituents live as either independent individuals or as family groups which may comprise of both parents and young, or only one parent and the young. Sometimes these families live in groups and so establish colonies and thus societies. These form a population and all populations of the same kind together form a species. Several different species living in a geographical area represent a local community, or bio region. The sum of all the local communities represent the entire living planet or biological sphere.

Humans, although possessing a single mind and body, are a community of lots of other smaller living things. Furthermore, we do not exist independently, but live in, and as part, of the larger environment of living things. We usually live as part of a family which is itself, part of a community. Many communities constitute a society, which is part of a population of all which

exists as part of the biological population that makes up the entire living planet.

As we know, we are not the only living things on Earth, although we often believe that we are the most important, which is a normal human assumption, for everyone is most important to one's self. We are just one of a great many living things, living together as a community that is a part of a larger, living whole.

We cannot separate ourselves from the rest of the community of living things on this planet, any more than the communities of smaller living organisms from which we are made, can live separately from us. We are, as is every other organism, the living Earth, and we are, in fact, part of the living surface of this planet.

Our bodies and minds are made from the same material that everything else is made. Subatomic particles, that combine to make atoms, that combine to produce chemical compounds, that combine to produce self replicating viruses, that combine to become bacteria, that in turn combine to create the cells from which human beings, along with all other animals and plants on the planet, are made. We in turn make up the living environments that constitute the surface of the planet, which is a single living entity that orbits our star, the Sun, and basks in its radiation, which sustains its life.

As you are a living entity made up of enormous numbers of other living entities, so the planet is a single living entity made up of enormous numbers of living entities. When viewed from the moon we can see that the Earth is indeed a single living spherical object quite different from the lifeless moon, but it is only when we come in for a closer look that we can begin to understand how it is formed. We can see that it is divided into many levels of organisation, a whole range of different environments that are interconnected with each other, and that every environment is inhabited by populations of organisms that are in themselves populations of organisms.

Almost every part of the Earth's surface is covered by living things, in the forms of viruses, bacteria and unicellular animals, and plants. Endless numbers of cells combine and co-exist in discreet communities to make up larger and more complex animals and plants, that form even larger communities that make up the entire population of life forms, which creates a living planet. So, the surface of our planet can be regarded as a single living organism. One gigantic living cell made up out of countless numbers of progressively smaller and simpler living cells.

In the middle of all this organisation of living material we find ourselves generally living our lives as if little else existed. Fancifully believing that we are the be-all and end-all of creation. That human beings are the only living things of any importance and that everything exists primarily for our benefit.

Chapter Six the Functioning of Human and Extraterrestrial Planets

There can be no doubt that the Earth is a single spherical object wobbling and spinning in space as it circles the sun. Nor can there be any doubt that it is a living object. The Earth is not just a planet where living things can be found, but it is a planet whose very surface has begun to live, endlessly reproducing and developing itself through more and more complex levels of organisation until it can begin to consciously think for itself.

Beginning as an accumulation of cosmic material, star dust; formed by the forces of gravity to become a tiny star of fiery molten matter; encased in a thin shell of the same material, cooled and congealed by the frigidity of space, yet heated enough by the sun to incubate the organic molecules until the planet itself becomes aware of its own existence.

The whole surface of the planet is alive, breathing with uncountable numbers of lungs, eating with uncountable numbers of mouths and thinking with uncountable numbers of minds. It is not a place that was colonized by life as if it came from elsewhere and settled here. The life on this planet comes from this planet, is this planet. Our earth is in every possible way alive and fully responsible for itself and we and every other living thing constitute its surface, its living body and its thinking mind.

Human beings, looking at everything from our own level of organisation, tend to imagine that everything exists in independent little pieces, a plant, a dog, a worm, a fish, a person; all living, but independent things. Life cannot possibly exist as independent blobs of no consequence to one another. Life is a continuity of living things all merging into one another, all part of one another. It is the environment that surrounds and always cradles us and is the scenery that we gaze at from any point on Earth.

The soil itself is alive, as alive as you or I. Not only was the soil produced by living things, animals and plants, and all manner of micro organisms, but those same living things that comprise the soil still grow in it, walk over it and crawl through it so that it not only teems with life but is life.

J.C. Hoffman, in his book *The Life and Death of Cells*, writes 'In any ounce of good soil there are a hundred million bacteria, thirty million protozoans, a million algae and another hundred million fungi, all milling around at close quarters as though they were part of an organized tissue. The bacteria alone on one acre of land may add up to several tons in weight. It has even been suggested that the soil itself is a living organism, with humic acid forming the body fluid in which the cells are seated.'

The air is alive, full of microorganisms floating in it, riding on thermals and air currents using rising clouds and falling rain, which they are creating, as methods of dispersal around the planet. Ten thousand living organisms inhabit every cubic metre of air near the ground where we breathe and live bacteria, algae and fungal spores extend up to 50 kilometres above the Earth's surface. It is also full of flying insects, birds, bats, and these days even large and heavy animals like humans. But, of course, it is not just a medium for flight, for it is the all enveloping atmosphere that directly supports life. It is the one of the most essential portions of the living planet's physical body, upon which all else depends and was created by this planet's life forms.

Before life existed on Earth the atmosphere was very thin, contained little oxygen and consisted primarily of hydrogen, carbon monoxide, ammonia and methane. This allowed ultraviolet radiation to scorch the Earth which would be lethal today, but was most essential then, as was the electrical discharges that agitated and activated the planet's molecular surface until the complex organic molecules, the sugars, nucleic acids and amino acids, were formed.

This led to the formation of deoxyribonucleic acids and thus the earliest reproducing life forms. These first primitive bacteria fed on the various carbon compounds that had accumulated in the earliest oceans and as they multiplied, competed and evolved, they slowly depleted their resources until it became necessary for new life strategies to develop. Manufacturing their own food within their cell walls, using the energy of the sun instead of relying on non renewable resources, was of great benefit to the bacterium that first developed this process of photosynthesis.

One of the ingredients needed for this new lifestyle was hydrogen and an organism that is still abundant today, Cyanophytes, or Blue-greens, a very primitive form of algae, learnt to take it directly from the water. When this occurs, it frees the oxygen atoms that evaporate into the atmosphere and over billions of years the present oxygen rich atmosphere developed.

This meant that life could finally leave the cradling, oxygen rich water and move out onto the land, now shielded from ultraviolet rays and containing oxygen that could be absorbed by the organisms to burn in their metabolizing bodies to produce energy for movement and life.

For a chemical compound to reproduce itself, thus forming the basis of life, a perfect blue printing and replicating structure had to exist and deoxyribonucleic acid or DNA does this by combining to form two intertwining helices that can unzip, splitting the molecule along its length into two separate helices. Each then forms a base to which other simpler molecules can attach themselves until another double helix is created.

If a mistake is made in this copying process, a length of DNA temporarily dislocated and re-inserted in the wrong place, the body building proteins will be quite different, resulting in a slightly different life form. If this accidentally created structural change is advantageous to the organism it will survive and reproduce, and thus the evolution of species can take place as they adapt to an ever-changing environment.

This occurred then, as it does now, and so life was able to conquer the land and the air as it had the water. Like the soil and the air, the water, whether fresh or salty, is alive and full of life, from micro organisms to gigantic whales, and once again they are not just living things swimming about but the water itself. For it was the water molecules and all it contained suspended in it, that originally began to develop organisation and reproduction, and all living things are composed mostly of water. As a general average, cellular matter is about 65% to 75% water, and that is of living things on land or in the water.

The muscles of our bodies or of any other creature are 75% water. Our bones and the marrow that creates them are 40% water. The brain is 80% to 90% water and all the other parts of our bodies are composed of the elements from the shore that have been washed down into the water and dissolved in it.

You and I are walking sea water, surrounded by lots of different membranes forming cells, tissue, organs and skin, which prevents the sea water from leaking out, and keeps it in discreet organized bundles so that the different parts can be used for different functions. Even the quantities of chemicals that make up our very being mimic that of seawater and all animal matter, including humans, are composed of 62% oxygen, 20% carbon, 10% hydrogen, 3% nitrogen, 2.5% calcium, 1.25% phosphorous, and smaller amounts of chlorine, sulphur, potassium, sodium, magnesium, iodine and iron, in that order.

We are not just walking sea water. We are also walking soil and walking air, for as a worm cannot exist without soil, so soil cannot exist without water or air, for all the Earth's environments are one. All part of one another, interconnected and interdependent.

All the different plants and animals are a part of their environment. They don't just live in a habitat, they are their habitat, their environment, and cannot exist without it and this of course includes us, in every way as well.

Our planet, then, is a living organism that is composed of all these environments that are in turn composed of all their plants and animals, along with humans. All of which are composed of their cells that are made up of symbiotic bacteria, that are composed of the matter and energy of the earth itself. Thus, we are a part of the living surface of this planet.

For the planet to continue to live its surface matter must be continuously recycled and that is why we are here along with all other life forms. The fact that we perceive our individuality a little better than most of the other things around us doesn't mean that we are in any way any different or any more important than all the other living parts of the environment. Our ability to reason should make us more efficient at doing our job of recycling the Earth's matter and energy and so help to keep it alive and conscious. At the moment, though, we are doing a better job of killing the planet than we are at helping to keep it healthy and expanding its mind, the only real job that we will ever have.

We are organisms that we call "animals", of the class Mammalia, of the Order Primates, of the Super family Hominoidea, that contain the apes of which we are a most remarkable variety. We humans generally believe that we are different from everything else because we can think, although what we occupy our time with is no more than any other organism.

When we get up in the morning, we think about washing and grooming ourselves, getting rid of bodily wastes accumulated during the night and getting ready for the day's activity. Then we think about food and drink which we may have stored ready for our use, or which we may have to go out into the world to obtain.

Next, we usually must go out to work, or go to school to learn how to go off to work. We work so that we may survive, so that we may obtain food and drink, and a shelter, a home territory, where we can eat and drink, socialize and sleep in peace.

We also work so that we may improve our status, our standing or pecking order in the community, of which we are a part. We think about where we stand with our friends and others around us, so that we may be as good, or better in some ways, as they are. We think about keeping up with the "Jones" next door. We have to be as good or better than the others around us because we think about sex and if we want a desirable sexual partner, we have to be desirable ourselves.

We spend time looking for and impressing potential sexual partners. When we are successful and find someone to love we shortly after discover that we must think about raising a family, the members of which will soon begin thinking about the very same things that we have been thinking about ourselves.

After a hard day at the office or elsewhere we think about relaxing, eating, drinking, perhaps more sex, or how to rearrange or improve our home environment or our status. Many of us are creative and think about producing something that may be enjoyable or enlightening to read, hear, see, touch, smell, eat, or use.

If we are successful it may help us to find greater status amongst our friends, better shelter and more food and drink. Some of us may be scheming of ways to obtain the necessities of life by dubious and unlawful methods. Others will be determining means by which they may protect themselves from those of us who do not have adequate food and shelter or who are greedy and want more than their share.

We may spend a very little time thinking about how it all came to be that we are here and what life is all about. Some will seek answers from the great variety of religions while others will study volumes on science and philosophy.

Most of us will decide that it is all too difficult to try and think about it for ourselves. We just give thanks that we are here while at the same time wondering what we should wear tomorrow what we should do on the weekend. And then it's time for bed because we must get up early and repeat the whole process over again the next day.

What we have done and what we have thought about is, basically, exactly what every other living part of the planet has done and thought about though we may have proceeded in a technologically enhanced and intellectual manner befitting our position as a part of the planetary mind. When we come down to it what we have done is recycle the matter and energy that the surface of the planet is composed of, just like everything else.

Let us take a more detailed examination into what we have been doing every day of our lives. To survive we eat and drink and rest. What do we eat and drink, but the planet itself, for aren't we planetary munchers and slurpers?

To continue to live we must have a continuous supply of atoms of carbon, oxygen, hydrogen, nitrogen, and those few other kinds, joining and becoming the cell communities of our bodies so as to build more cellular structure to replace those that are continuously dying and being disposed of out of the body. We also need energy to power this process and all the others that make life and movement possible.

So, we inhale oxygen which, through respiration, combines with the food molecules and breaks the bonds between the carbon atoms and the hydrogen atoms thus releasing the energy that we need. It is the breaking of the chemical bonds that produces the energy in fires and explosions, such as those that power the internal combustion engine in our cars. But that is uncontrolled combustion where all the bonds may be broken simultaneously whereas in our bodies it is controlled combustion and energy is obtained from one or a few bonds at a time.

After the bond is broken and the energy is released and transferred to the system, the hydrogen atoms and the carbon atoms attach themselves to the oxygen atoms to form the two main end products of respiration, that of water and carbon dioxide, both of which are then expelled from the body. Both these end products are essential for plants and their photosynthesis.

They are absorbed and light energy is used to split the water molecules so that the hydrogen can be fixed to the carbon dioxide to produce carbohydrates which provides the building blocks and energy from which the ecosystems are constructed. The oxygen is then expelled from the plant as the end product of its respiratory system which once again becomes the essential fuel for animal respiration and this continuous recycling maintains the life of our planet sized organism.

A living planet, like all of its constituent organisms, needs a particular habitat or environment to ensure its survival and this it can only find at a particular distance from a stable star where it has access to a sufficient supply of radiant energy but not so much as to over heat it. The plants have invented and perfected a very fancy piece of technology that is an electron pump driven entirely by light, particles of which, called photons, dislodged these electrons from the oxygen molecules held in the chlorophyll cell.

The change in the orbit of the electrons releases energy that is then captured in the chemical bonds of two high energy compounds using carbon dioxide and which will then undergo further chemical reactions to convert it to sugars, sucrose, starch, cellulose and all the other building blocks that run

the environment. Electrons that were ejected from their molecules when the photon of light struck are passed along a series of enzymes, their energy being used along the way to create the useful compounds, until they are returned to the chlorophyll molecule to await the next photon light. (9)

The energy produced by this light powered electron pump then permits the plant to draw water and the dissolved elements, washed out of the rocks, or the compounds of nutrients that are the waste products of other life forms, up into the plant via its cells to be incorporated into the plant itself. Thus, the plants concentrate the molecules that we also happen to need and we then may eat the plant for those nutrients as do all other plant eating animals. If we prefer an even richer concentration, which means less time consumed in eating, we may then eat those plant eating animals that have further concentrated those nutrients that we want for ourselves.

Living organisms, therefore, are the only things that can concentrate a large variety of matter and that is exactly what we are doing every time we have our meals of grains and vegetables and meat. Since it is also what every other living thing is doing, everything is eating everything else, all the matter and energy that is the living surface of the planet is continuously being reorganized and recycled so that the planet and all its constituents may continue to live.

Eating then is one of our main occupations, our dominant purpose in life because unless we eat, we will cease to exist and then we will fail to fulfill our other purposes. But we should only eat what we need, for as soon as one begins to over eat, we are eating someone else's share, human or otherwise, and all kinds of trouble results. Now humans are thoroughly engaged in literally eating the whole world, because we are generally under the belief that the world is here for our benefit instead of comprehending the reality that we are here for the benefit of the world.

For the Earth and its single all encompassing living environment, composed of all that exists on its surface, is very similar to any one of us. We do not survive for very long once any of our constituent cells begins to live only for themselves and not for the community that is our body. Likewise, we cannot expect the planet to survive for very long if we live only for ourselves, like a cancer in our body, instead of living also for the entire community of life that makes up the planet that we are a part of.

Humans, like all other animals and plants, are made up of cells and communities of cells that form tissues and organ systems that are all essential for the well being of the individual that they create. Our living planet is made up of cells that make up plants and animals that form communities that form tissues of tundra, grasslands, forests, jungles, swamps, marshes, lakes, rivers, oceans and atmosphere that all combine as organ systems of environments that are all essential for the well being of the individual that they create.

Our minds are built up on the same levels of organisation that our bodies and everything else in the universe is built up on. The individual personality that is you is not a single entity at all for it is composed of enormous numbers of other entities.

For a start it is composed of billions of cells all contributing their equal share to the complex community of the brain cell environment that is the physical basis of your mind. Inserted into that is the countless second by second different experiences that the outside environment has inflicted upon your brain via your senses. The cells have reacted to these experiences thrust constantly upon them by recording them and interpreting the patterns that appear until, as a community, they can build up a picture of what the outside environment is like and can then determine the most appropriate behaviour correlated to that environment.

As your body has a mind composed of various levels of organisation of smaller bodies and minds, the cells, so this planet has both a body and a mind composed of various levels of organisation of

smaller bodies and minds. All living organisms are conscious and this consciousness beings with the cell.

The more cells that congregate and work together the greater the consciousness and the most complex organisms composed of enormous numbers of cells existing as tissues and organ systems are therefore the most conscious. There can be no doubt, then, that as your body has a mind and a consciousness so this plant has a mind and a consciousness which is the combination of all of its smaller minds and consciousnesses.

Being a spherical organisms, orbiting its energy source in the enormity of space, the Earth does not need to concentrate its mind in any one section of it's body, as most animals do with their brain at the front of the body, along with their senses, examining the environment as they proceed forward. Because of its shape and the spatial environment that it exists in, the planet's mind is distributed throughout the body of the organism.

The most complex and conscious portion of the planet's combined mind then results from the most complex and conscious communities of cells which are the highly evolved mammals called Cetations, dolphins, whales, and Primates, monkeys, apes and humans. The cetations are the dominant highly developed consciousness of the aquatic environments that make up the majority of the planet's surface and there can be no doubt that the humans are the dominant highly developed consciousness of the terrestrial environments.

Our combined human minds are at present the planet's conscious, thinking, personality and like everything else in the universe it is developing from simplistic to complex. At its present state it is very rapidly developing it's continuously more complex and efficient structure so that the organism that we refer to as the biological sphere or planet call Earth can communicate rapidly with all parts of it's constituent mind and perhaps eventually with other similar conscious biospheres that may orbit their own respective energy rich stars. However, because of the non completed structure of the Earth's most conscious intellect, the real thinking mind of the planet is slowly and accidentally blundering along its evolutionary course hardly even aware of its own existence.

So where is our planet's conscious communicating personality? It is the communication network that we humans have set up! It began with the body language and oral communication development by the earlier organisms, though perhaps it was olfactory communication between the very earliest viruses, bacteria and other primitive single celled life forms as they absorbed floating atoms discharged accidentally from friend and foe that began a communicating consciousness. It has evolved greater complexity over time with sonar communication dominating the oceans. It was the apes, with their rapidly expanding minds, that culminated with that paragon of the animals, humanity, that set the scene for a truly intellectual communication based on a complex oral language.

The planet's conscious mind began to expand with the inventions of writing, printing and mathematics and so until recently it was the communication from newspapers, letters, books and word of mouth that made up most of the personality. Now it has become highly audible and visual and these communications are rapidly enveloping the entire planet in communicated consciousness. Turn on your radio, television set or surf the worldwide internet via your computer and you will immediately be able to listen to, observe, and interrelate with one of an enormous number of networks of communicated consciousness.

You are not just listening to a radio program or watching your favorite show on TV; you are listening to and watching a part of the planet's mind. If you are approaching the planet from space and possessed the technology, you would be able to pick up all these signals. Then your computers could translate the electromagnetic signals into a whole plethora of consciousness that comes from

the planet itself.

One would quickly find that the planet's thoughts are still quite primitive, almost random, competitive and repetitive, and mostly disassociated from one another. The planet's mind has not yet evolved into a single conscious mind because its constituent members are still hardly aware of themselves, much less the existence of the planetary whole.

However, things are rapidly changing with the advent of the international network of computer terminals and the superhighway of information that has encircled much of the globe. The internet is evolving into a major portion of the planet's mind. The planetary mind is awakening!

Doug Randall, of the California-based Global Business Network, one of two authors of a secret report *An Abrupt Climate Change Scenario and Its Implications for the United States' National Security*,⁹ commissioned by influential Pentagon defence adviser Andrew Marshall. The other author is Peter Schwartz, CIA consultant and former head of planning at the Royal Dutch/Shell Group. It was suppressed by US defence chiefs and unknown to the public until it was obtained and published in the United Kingdom newspaper *The Observer* on 22nd February 2002 by New York-based reporters Mark Townsend and Paul Harris.

The document predicts that abrupt climate change could bring the planet to the edge of anarchy as countries develop a nuclear threat to defend and secure dwindling food, water and energy supplies. Randall added that: 'it was already possibly too late to prevent a disaster happening. The consequences of climate change for some nations are unbelievable. It seems obvious that cutting the use of fossil fuels would be worthwhile.'

'Disruption and conflict will be endemic features of life,' concludes the Pentagon analysis. 'Once again, warfare would define human life. Climate change should be elevated beyond a scientific debate to a US national security concern. An imminent scenario of catastrophic climate change is plausible and would challenge United States national security in ways that should be considered immediately.'

Climate change is created by global warming which in turn is created by carbon dioxide emissions that are trapped in the atmosphere and seals in solar heat just like a greenhouse. Here in Australia the CSIRO has already discovered that global warming has increased the speed of the winds around the Antarctic continent. Low pressure in the Roaring Forties, normally pushed well south in summer, has moved closer to those lands fronting the Southern Ocean and is primarily responsible for recent droughts.

The report is based on the recent findings of oceanographers who came together for a worldwide meeting in February 2002. One of these scientists is Dr Robert B. Gagosian, President and Director of the Woods Hole Oceanographic Institute, Woods Hole, Massachusetts, who recently wrote:

'If the atmosphere continues to warm, it could soon trigger a dramatic and abrupt cooling throughout the North Atlantic region, where, not incidentally, some 60% of the world's economy is based. When I say 'dramatic', I mean that the average winter temperatures could drop by five degrees Fahrenheit over much of the United States, and by ten degrees Fahrenheit in the northeastern United States and in Europe. That is enough to send mountain glaciers advancing down from the Alps, to freeze rivers and harbours and bind North Atlantic shipping lanes in ice, to disrupt the operation of ground and air transportation, to cause energy needs to soar exponentially, to force wholesale changes in agricultural practices and fisheries, to change the way we feed our populations. In short, the world and the world's economy would be drastically different.

And when I say 'abrupt', I mean that these changes could happen within a decade and they will persist

for hundreds of years. In just the last year we have seen ominous signs that we are headed towards a potentially dangerous threshold. If we cross it, Earth's climate could switch gears and jump very rapidly, not gradually, into a completely different mode of operation. It has happened throughout Earth's history and it could happen again.

The key to these climate shifts is that Earth's climate is created and maintained by a dynamic system of moving, interacting parts. Earth's climate system has two main components. The first one is the atmosphere, which circulates heat and moisture around the globe. But, in fact, the atmosphere redistributes only about half of the energy that the Earth receives from the Sun. The other half is transported around our planet by a circulatory system that is equally important, the ocean. It stores about 1000 times more heat than the atmosphere does. So, changes in the ocean circulation can set the change for large-scale, long-term climate change.

The Great Ocean Conveyor is the ocean's major heat-circulating system. The ocean keeps our planet from overheating by transporting heat north and south, from the equator to the poles. The most famous and the most important of these currents is the Gulf Stream. The vast Gulf Stream transports the equivalent volume of 75 Amazon Rivers. It carries heat absorbed in the tropics and moves up the East Coast of the United States, then northwards towards Europe.

When the Gulf Stream's warm, salty waters reach colder latitudes, they give up their heat to the atmosphere. The atmosphere in the North Atlantic regions warms by as much as 10 degrees Fahrenheit. Prevailing winds carry the heat eastwards into Europe. That's one reason why London, England, which is located at the same latitude as Calgary and Edmonton, Canada, has warmer winters than New York, which is hundreds of miles farther south.

When the Gulf Stream's waters reach Labrador, Greenland and other northern seas and lose their heat to the atmosphere, they become colder and hence denser. The waters are also relatively salty. Salty water is denser than fresher water, so the whole salty mass begins to sink to great depths. When this sinking mass of cold water reaches the Abyss, it then flows at deep levels of the ocean, from the North Atlantic into the South Atlantic. The plunge of this great volume of cold, salty water propels the Great Ocean Conveyor.

In the past year, oceanographers monitoring and analysing water conditions in the North Atlantic have concluded that the North Atlantic has been freshening dramatically, especially in the past decade. New data from Ruth Curry at Woods Hole Oceanographic Institute and her colleague Robert Dickson at the British Centre for Environment, Fisheries and Aquaculture Science, has chronicled salinity changes in the western North Atlantic since 1960. The very recent freshening signal in the North Atlantic is arguably the biggest and most dramatic change in ocean property that has ever been measured in the global ocean.

We cannot yet determine the precise source or sources of this additional fresh water. Global warming may be melting glaciers or Arctic sea ice. In recent decades, the Arctic sea ice has decreased by 40 per cent. At some point, the North Atlantic will no longer absorb any fresh water. It will begin to pile up at the surface. When that happens, the Great Ocean Conveyor will be clogged. It will back up and cease functioning. In February 2002, at a worldwide meeting of oceanographers, new data on North Atlantic freshening prompted many scientists to say that salinity levels in the North Atlantic are approaching a density very close to the critical point at which the waters will stop sinking.

By taking cores from the ocean floor, it is possible to reconstruct the history of ocean climate back many thousands of years. From records like these, we know that about 12,800 years ago North Atlantic waters cooled dramatically, and so did the North Atlantic region. This large cooling in Earth's climate occurred in about a decade and the cold spell lasted for about 1,300 years. This period is called the Younger Dryas, and it is just one of several periods when Earth's climate changed very rapidly from warm to cold, and then back to warm again. So, these long-term cold snaps are not unusual'. (1)

Tim Flannery, Director of the South Australian Museum, recently published a book, *The Eternal Frontier, an ecological history of North America and its people*, which included a chapter, entitled 'The Fatal Configuration.' This described how the North American continent's shape and highland configuration create a 'climate trumpet' that could shortly spell doom to the greatest economic & military power on the planet.

Tim Flannery describes why chilly blasts afflict summer days even in the warmest portions of that great nation. 'North America's climate is strongly determined by its shape – a great inverted wedge with a 6000-kilometre-wide base deep in the sub-Arctic. To the south, the wedge narrows until it is reduced to a peninsula just sixty kilometres wide... On its eastern side the wedge is reinforced by the Appalachians, while in the west the Rocky Mountains perform the same function. No other continent has this configuration...North America is cursed with mountain ranges that run north-south.

In winter, air that has become super-chilled over America's vast northern expanses surge southwards, funnelled by the north-south ranges towards the tropics.... As the Earth cools, North America's capacity to amplify change rapidly drives it to a break point, beyond which it falls into the frigid grip of the poles. It can then be said to be in icehouse mode, a mode that characterises the present. The last shift to extreme icehouse conditions occurred around 18,000 years ago, then returned to the present (still ice age) conditions just 10,000 years ago... Drop the deep-sea temperatures just another two degrees Celsius, and North America becomes dominated by a field of ice some 18.5 million square kilometres (75% of its present land mass) in extent.' (2)

The recent findings of oceanographers have shown that these disastrous climatic conditions can also be caused by the human-induced failure of the Great Ocean Conveyor. Climate change has been responsible for the majority of animal and plant species extinctions in the past. Humans are unlikely to go extinct, but the massive global changes may well devastate our global civilizations to such an extent that it may never be able to recover.

In the past the easy access to mineral and petroleum resources gave humans the opportunity to establish a global technological society. With the depletion of so many locally available resources our civilization is now dependant on mineral and petroleum deposits in remote locations. These are only available to us because of our healthy global economy that can afford the economies of scale to extract them from such remote locations. This may not be possible once extreme climatic conditions have descended upon us.

The protection of the planet's environment is not only important for the survival of endangered species. The future well-being of humanity is also directly related to environmental protection. Locking up forests and controlling pollution may well have a cost to some economies but these are nothing when compared to the economic future of our entire population.

- (1) "Can Global Warming Cause an Ice Age?" Dr Robert B. Gagosian, President and Director of the Woods Hole Oceanographic Institute, Woods Hole, *Nexus Magazine*, Vol 10, No. 2 February /March 2003.
(2) 'The Eternal Frontier, An ecological history of North America and its people' Tim Flannery, Director of the South Australian Museum, Text Publishing, Melbourne, 2001.

Chapter Seven Understanding People

We possessed until recently very little, if any, positive physical evidence of a conscious, spiritual or energetic aspect of reality. We had no direct proof that consciousness and personality persist after bodily death nor had we any proof of a God-like consciousness, over-lording reality. These are aspects that normally lie beyond the clutches of known physical investigation and we can only examine, sensibly, those reported phenomena whose explanations may possibly only be found in an astral realm, such as life-at-death experiences, past life or reincarnation memories and other such paranormal evidence.

We had until recently little knowledge of whether an astral realm even existed, much less how, why and where. We do have a great deal of knowledge, accumulated and rapidly expanding, on the physical universe and this little portion of it that we call home. To understand reality we do not need to examine it all and in fact a great deal of enlightenment can be gained by simply observing whatever happens to be in front of your eyes at any one time and by putting our brains to work on what we are actually looking at. A great place to become enlightened is by coming face to face with yourself in front of a mirror or to closely observe your family and friends.

We know, of course, that we are human beings existing in different, often isolated, populations that are scattered across the planet. We will belong, possibly, to a religion or belief, and certainly to a culture, that pre-programs our minds to a certain degree. We will be wearing cloths and living in dwellings largely dependant upon our financial position. We will have friends and family, personal interests and probably a job of some sort that brings in the resources that we depend upon for our survival.

But let us begin to look more closely. We know that the words "human beings, people, man, woman, child", etc., are recently invented words that we have applied to ourselves. For untold thousands of years, we used different names altogether, depending upon our cultures. At one time, very long ago, we didn't know ourselves by any name. So apart from our almost fictitious name, what are we really?

Science tells us that we are a species of animal, a warm-blooded mammal in the primate family. This is a horrifying thought for a great many people who consciously separate themselves from the rest of the living world. However, it is essential to remember that the animal concept is but one scientific viewpoint, one level of organic organization. This is because scientific examination has also discovered that all animals and plants are discreet populations of symbiotic cells, cellular communities that are in themselves composed of even smaller living entities called bacteria.

Surprising as this appears, the latest detailed studies of our cells have revealed that we and all other animals and plants are composed entirely of symbiotic populations of bacteria. In other words, populations of bacteria that have learnt to live together as tightly knit communities. Meanwhile another branch of scientific investigation, quantum physics, has shown us that bacteria and everything else in the universe is ultimately composed of conscious motion. To understand what we are we must examine all these different levels of organization.

Science is rapidly changing our ideas from long cherished, but unfortunately, ignorant beliefs, to a clearer, definable reality. Science has shown us that we are animals, both inside and out, 100 %, and that we differ in no way from the animal world what-so-ever. We and the rest of the animal kingdom are built out of the same materials and are engineered in precisely the same manner. We also know what kind of animals we human beings are. We are primates, or in other words monkeys. We may be tall, up-right, puny-haired, bipedal, walking, running, swimming, thinking monkeys, but we are primates non the less.

No one will disagree that monkeys are animals, no matter what kind of monkey they are. If they are lemurs, old-world monkeys, new-world monkeys, if they are baboons, gibbons, orang utans, gorillas or chimpanzees, there is no doubt in the world that they are all animals. If you watch the face of any kind of monkey at a zoo you will quickly notice how alert, intelligent and inquisitive that monkey is. Look closely at its eyes, the expressions that constantly flash across its face, the different vocalizations that it makes with its mouth. Notice the way its hands are constructed, its body and limbs, check the design of its ears, its genitals, the breasts of the females, the hair on its head.

Then look at the people watching the monkeys and take notice of their facial expressions, their eyes, ears, hair, hands, etc. Do not look for differences, there will be plenty of that amongst the people as it is. Look for similarities. What you will quickly notice is that some kinds of monkeys, the largest ones, very much resemble in body and movement the people that are watching them, and these are called the man-like apes.

Examine a chimpanzee. There are certainly many smaller physical differences, an inability to stand upright as we can, a different shaped nose, hand-like feet, and a hairier body. But then look at your own arm or leg and you will find that there are just as many hairs on your body as there are on the apes. Our hairs are not as luxurious, they are shorter and punier, though in some places, as on the head and the groin, it is just as hairy.

Next think about what kinds of other animals have a warm-blooded system, an originally hairy body that is now almost hairless, and suckle their young with mother's milk. The sea-going mammals like seals, dugongs, manatees, porpoises, dolphins and whales, have also lost much, most or all their original hairy covering and in its place is a subcutaneous layer of fat, which is exactly what us humans have beneath our skin and is unique in primates. Then think of where most people like to live, where the largest populations of humans are to be found. By the sea-side or by lakes and rivers. Then look at the slight webbing that still exists between your fingers, the way the patterns of hair lines across your body exactly parallels the way the water flows across it while bathing and take notice of that large object in the centre of your face.

Why do people have such large hooded noses instead of just a pair of nostrils like most other monkeys? Well imagine what would happen if a monkey tried to dive or swim underwater. The water would, of course, run straight down its nostrils. But if a hooded extension arose to partially cover the nostrils from water which comes sweeping down across the forehead and face as one dives or swims, the problem would be greatly alleviated. The only other species of monkey that has a hooded nose, the proboscis monkey of Borneo, is also the only other semi-aquatic primate.

We are, in fact, primarily tropical, partly aquatic apes, the original ecological niche that we chose several million years ago as our favorite place to live. Beaches and shallow water are relatively safe places to spend time. In a wilderness situation we can go into the water if any terrestrial predators turn up, and we can go back onto the land if any aquatic predators arrive. Most important though is that shallow water is one of the best places to find the greatest amount of nutrient-rich food in the form of shellfish that also happens to be the easiest to catch. All one must do is stand upright in the water and dig around with one's toes and swivel around on one's hips and bend down to grope in the sand with one's long sensitive fingers.

To catch shellfish, crabs, crayfish, lobsters and edible seaweed in deeper water one can swim and dive to the bottom. The hooded nose stops the water rushing into the nostrils and the hair on the head will protect it from the sun when we surface. When one has collected enough to eat it is easy to go back to the shore to find a stone to crack open the shells and so begin to feast.

It is on the shore, in the rich lowland forests that one can find the greatest variety of fruits, nuts and

leaf and root vegetables. One can also take a stick and jab at the faster swimming fish which are also delicious to eat raw as the Japanese still realize. When one visits coastal areas where hunting and gathering has, until very recently, continued to be the primary method for food acquisition, such as with the Aborigines in Australia, great piles of shells, called “middens”, stand as testimony to the longest succession of feasting humanity has enjoyed.

Our bodies still reflect this earliest human life style of beachcombing. We have puny hair covering as an adaptation to regularly swimming in salt water and a subcutaneous layer of fat to help us float and to help keep us warm so that we could dispense with all that messy hair. We have a hooded nose to stop the entry of water. Our females have large floating breasts for infants to suckle whilst swimming. We have an upright stance essential for wading in deeper water and large muscular buttocks to support a swiveling hip so that it is possible for us to bend and twist as our long sensitive fingers can grope in the sand and hair in our heads to protect us from the sun.

In other words, all the essential things that make us human are all adaptations to the environment in which we lived, and hunted, as all animals have different shaped bodies as adaptations for their survival, in all their different ecological niches. All the apes have large brains and as anyone knows who has visited a circus or zoo and watched them perform, they are amongst the most intelligent of animals. We humans have developed our brains to an even greater extent because it was essential for our survival to live in large social groups as we moved from ocean shores to conquer other environments.

The use of tools was further refined by combining the shell-smashing rock with the fish-jabbing spear so that stone axes, flint spears and arrow heads, propelled by spear throwers and bows, made us aquatic apes very formidable indeed. As population pressure grew many of our ancestors moved inland to hunt larger game and from wood and flint came the development of fire making.

The oncoming of the ice ages further spurred the development of our brains and our minds as we continued to adapt to an always changing environment. We had to live in caves or mammoth bone and hide dwellings, warming ourselves and cooking our food with fire, which stopped it going quickly rotten. We used animal skins for clothing to insulate our bodies against the cold, onward and onward our minds and technology advanced until today we have become so over specialized and dependant on our minds and our technology that we could not exist without them.

But all scientific studies have proven that we are still animals. Just because we are specialists in certain fields and the frontal lobes of our brain have developed to a greater size and complexity than in other species doesn't mean that we are not animals. After all, our brain is still an animal's brain entirely constructed out of cells and bacteria.

Because the continents are drifting across the planet's surface and the climate is always in a state of change, all animals and plants are forced to adapt and specialize themselves to their immediate changing environment. All life forms are in constant competition for resources and are always refining parts of their bodies to enhance their survival. Environments or ecosystems can remain little changed for vast periods of time and many species are so well equipped for survival that they can remain relatively unchanged for vast periods of time.

But eventually change always comes and animals have to occasionally make radical changes to their body to survive. Once they have successfully done so they may then find that they can out-compete other species for resources and so drive them to extinction and they may then take off into directions almost unimaginable. Fish have changed their fins into wings, as in flying fish, and into limbs, as in walking fish, that eventually culminated into amphibians, reptiles, mammals and birds. Bats and birds have changed their forelimbs into wings and seals, dugongs, manatees, dolphins and whales have changed their limbs back into flippers and fins. Everything is always in a constant state

of change because everything is constructed entirely out of movement, and movement, by its very definition, is in a constant state of change and evolution.

Giraffes have developed long necks, gibbons and orangutan's long arms, kangaroos, deer, antelopes, horses and cattle, long legs, Australian possums, American opossums, certain anteaters and the South American monkeys have developed long, prehensile tails. Apes, humans, dolphins and whales have developed their brains, the latter going even further to develop three-dimensional sonar sensing. All have developed specializations to aid in their survival in the ecological niche that their ancestors first chose.

Perhaps one might state that we are not animals because we can think, or are conscious, and can talk and must learn how to do things. But, once again all animals think and, as always is the case some think better than others, but they are all conscious and they can all think. Of course, the more highly evolved and the greater the structural development of the organs, especially the brains, means the more that it can think and the less it has to rely on its instincts, which may not be enough in a rapidly changing world. So that mammals and birds think better than reptiles and amphibians which are better at it than fish which have more developed brains than invertebrates, but they are all still thinking. They all have their methods of communication and the higher life forms must learn how to live their lives.

Behavioral scientists have discovered that birds must learn to fly, learn to sing and communicate and learn how and where to find their food. Mammals have to do likewise, monkeys learn how to climb, seals learn how to swim, carnivores learn how to hunt, herbivores have to learn what foliage to eat and where and when, and all have to learn by trial and error, by experimentation, what is distasteful and poisonous and to remember not to repeat the same mistakes in the future. The social animals must learn how to get on with their neighbours and develop their social order. Monkeys, apes and many other higher animals have to learn how to raise their own young and so much of what they do, they have to learn by following their parents' examples just like us humans.

The higher animals, especially the monkeys and apes, must learn to talk and have complicated, culturally dependant languages. When Dorothy Cheney and Robert Seyforth at U.C.L.A. examined the grunts uttered by troops of wild monkeys using a sophisticated spectrographic analysis they discovered that what sounded like unvarying grunts to human ears proved to be a set of different vocalizations each with a different meaning.

The monkeys possess a language with different words that have precise meanings, words that identify a particular predator like "leopard", "snake", "eagle", etc, and as continued studies in these fields progress we shall soon find that what may sound like the senseless chatter to our ears are in fact complicated sound-based systems of communication. Social birds such as Noisy Minors and social rodents such as Prairie Dogs have also proven to have similar languages with the latter even communicating to one another about the colours of the clothing that experimenting scientists are wearing.

It was not very long ago that tribal people were regarded as lowly savages with little in the way of advanced languages, customs, religion or culture. In fact, the reverse turned out to be true, and people, like the Australian Aborigines, have been found to possess one of the most highly developed and complicated of cultures with the various individuals speaking multiple languages, depending upon who they are speaking to, within their social framework.

Although most of us hold the sacred view that we are somehow different from the rest of the world, and certainly not animals, the facts, universal truth, says otherwise. Detailed scientific observation is showing us that we and the apes are very much more closely related than we could have ever imagined. Furthermore, like us, the apes have long ago developed and retained their own forms of

culture, expressed, again like us, with different behavioral and vocal variations amongst the populations.

Jared Diamond, a UCLA physiology professor, has predicted that we will find with further study: '... great behavioral differences, transmitted from each generation to the next, among troops of wild chimpanzees or gorillas: in short, cultural differences.'

He believes that wild chimpanzees and gorillas will prove to have '.... natural languages - many vocalizations with meanings that differ among troops.' So, in populations of chimpanzees and gorillas we may be seeing a parallel to the beginnings of our own human cultures, for the apes are developing their own languages and cultures.

An even more detailed examination, that of D.N.A., which carries all the genetic information transmitted from parent to offspring, has produced even more surprising results. It has been understood since Darwin's time, amongst biologists and other scientists, that we are in fact animals and related to the apes. Modern scientific classification puts us together with the apes in the superfamily Hominoidea.

However there has never been any detailed evidence to show us exactly who we are related to in the animal kingdom, and what that relationship is. Anatomical and fossil evidence has been scrutinized for many years, but no information could be obtained to tell us exactly where we stand in the ape family tree, except that we may have departed from the other apes between four and nineteen million years ago.

Because of this lack of detailed information, the apes have been classified as belonging to different genus and families, thus the smaller apes, the gibbons, are in the Hylobates genus, the orang utan in the Pongo genus, its name being *Pongo pygmaeus*, the gorilla in the Gorilla genus, i.e. *Gorilla gorilla*, and the chimpanzee in the Pan genus, i.e. *Pan troglodytes*, with the pygmy chimpanzee named *Pan paniscus*. Altogether the apes are classified in the Pongidae family while humanity is classified in the genus Homo and stands in the Hominidae family. But a closer examination of our D.N.A. is about to change all that by producing much more accurate, but somewhat shocking results.

About thirty-five years ago biologists began to realize that a molecular clock may be operating in all organisms and from which we could measure genetic distance and date evolutionary branching points as the molecular structure mutated or changed at a steady rate. Jared Diamond explains it as follows:

'Two species derived from a common ancestor would start off with identical forms of the molecule but as they diverged from each other and from the ancestor, mutations would change it. Thus, by comparing the present architecture of the molecule in different species, we could measure how different the creatures were genetically and how much time had elapsed since their divergence.

For instance, a molecule might differ by one percent in a pair of species known from fossil evidence to have diverged five million years ago. If the same molecule differed by two percent between two species whose fossil histories were unknown, the molecular clock would indicate that they went their separate ways ten million years ago.'

During the 1970's two very patient and dedicated biologists, Charles Sibley, an ornithologist at Yale University, who is director of its Peabody Museum of Natural History, and Jon Ahlquist, a research associate, were able to demonstrate that the D.N.A. molecular clock does have a steady rate of change and they were able to measure that rate. They used the D.N.A. molecular clock to decipher the evolutionary relationship for over a thousand species of birds and showed that the genetic

D.N.A. molecules evolve at a steady rate which is the same for all species.

After ten years work on more than eighteen thousand pairs of bird species to prove beyond doubt that the principles on which the D.N.A. clock rests are unassailable and that it ticks at a steady rate they have in recent years applied the same D.N.A. methods to human origins, comparing our genetic molecules with those of our closest relatives. As to be expected, they found the greatest molecular differences to lie between monkey D.N.A. and ape / human D.N.A. This agreed with the anatomical evidence that monkeys belong to a separate primate family. The least difference they discovered was between the chimpanzee and the pygmy chimpanzee whose anatomy also proves them to be very closely related.

Upon examining human D.N.A. it was discovered that although the genetic distance between us and the chimps is more than double that between the two chimp species, the gorilla is even further genetically different from us, or from either chimp. In other words, the chimpanzee's closest relatives are not the gorillas but the humans! We humans then are more closely related to the chimpanzee than the chimp is related to the gorilla.

The latest studies have found that monkeys share 93 % of their D.N.A. structure with apes and humans. This means that there is only a 7 % difference between us and the monkeys. Gibbons differ from us by 5 % while Orung Utan differs by 3.5 %. Gorillas differ from us by 2.3 % and chimps differ from us by only 1.6 %. This means that we share 98.4 % of our D.N.A. structure with these fascinating animals.

The oxygen carrying protein Hemoglobin that gives our blood its red colour is identical with chimp Hemoglobin and so it is virtually chimpanzee blood that courses through our veins. The important visible distinctions that separate us from the other chimpanzees such as our upright posture, our large brains, and sparse body hair are concentrated in only 1.6% of the genes that make up our body and mind. Only 1.6 % of us therefore is truly human.

This does not mean that 1.6 % of us are not chimpanzee, we are still 100 % chimpanzee, and the 1.6 % of us that differs consists of mutated or rearranged chimpanzee genes that were forced to change as we adapted to a semi-aquatic environment. The Pygmy Chimpanzee from central Zaire differs from the Common Chimpanzee by 0.7 % of its genes which gives it a slender, smaller build, longer legs and different sexual strategies which include face to face copulation that can be initiated by either sex. The females are sexually receptive for much of the month instead of just brief periods in mid month as in Common Chimpanzees. Socially there are strong bonds in the Pygmy Chimpanzee amongst the females, and between males and females, whereas in the Common Chimpanzee social bonding only occurs amongst the males as they guard their territory

From this, we can see that a 0.7 % difference between those two species of chimpanzee has caused a variety of differences in body shape and behaviour and so the 1.6 % difference in our genes, barely double that between the two previous species, has also been responsible for our anatomical and behavioral differences. We really are a third species, a Semi-aquatic Chimpanzee.

To really understand ourselves as Human Beings we must comprehend why we look and act as we do. Exactly why do we have such an upright posture, such sparse body hair, such a wonderful large brain and why do men tend to be larger than women? Why do the different races of humanity have different skin, hair and eye colours, and different body shapes and facial features? What is the reason behind our varied sexual behaviour, our concealed ovulation, our constant receptivity and brief fertile period in each menstrum cycle, and what is the reason for menopause?

All these things that make us human are quite easy to understand. However, a lot of detailed examination and research has been essential to gain this knowledge. For instance, it was believed

that our ancestors lost their hairy covering to become cooler while chasing game across the hot savannah grasslands and that we then developed our subcutaneous and other body fat to keep us warm. This proves not to be the case because our bare skin increases the body temperature when in sunlight and the fat layers do not keep us warm. The newborn harp seal must lie on the frigid windswept ice and yet, is born without fat.

Humans are unusual amongst land dwelling mammals in that we carry large quantities of white adipose fat all year round and this extra weight slows us down and burdens us with heavier infants. Between the 30th and 40th weeks of pregnancy the amount of fat in the foetal child rises dramatically from 30 grams to 430 grams so that it constitutes 16 % of the birth weight, which compares with 3 % in the newborn baboon. Human adipose tissue is much more mature at birth when compared with the adipose tissue from the newborn of other animals. Its production in such large quantities creates a considerable draw on the energy reserves of the mother during the last weeks of pregnancy that no other primate must endure.

The development of so much fat tissue also disadvantages our babies in that there is much less available nutrients and energy for the growth of the skeleton and the growth rate of the foetal body length slows after the 20th week of pregnancy. The skeleton is immature at birth when compared with other mammals and so the infant is less mobile and much heavier to carry because of all the fat. White adipose fat is of no use in keeping the baby warm. That is the role of brown fat which supplies quick increases in temperature as it converts to energy, before the baby can shiver. However even this brown fat is converted to white adipose fat at the age of four months.

Besides energy storage there is only one function that white adipose fat performs extremely well and that is providing buoyancy in water. Only aquatic mammals that need a great deal of buoyancy have large quantities of white adipose fat and a surface feeding whale has fifty times the amount of blubber it would need to keep warm. Deep diving whales and seals, such as the walrus, have relatively little fat as their large body size tends to keep them warm and too much buoyancy would stop them from feeding in deep water.

Only an aquatic phase in human evolution can account for the urgent foetal drive to acquire buoyancy before birth. This would also account for our hairlessness and for our upright posture in that it is only the need for swimming in quadrupeds that will realign the spine and the hind limbs in a straight line and tilt the pelvis in the same direction as bipedalism. Adapting to an aquatic lifestyle would also have given us our small heads in relation to our bodies and our round limbs and smooth skin, which would have originally been black, to absorb heat and protect us from ultra violet radiation.

It was University of Oxford zoology professor, Sir Alister Hardy who first proposed the Aquatic Ape Theory and then popularized by a British researcher and author of *The Decent of Woman*, Elaine Morgan. Sir Alister Hardy's discoveries really show that we are a semi aquatic species, which explains why we love to spend time on beaches, lying like seals in the sun and swimming and diving in the water. Humans have hairless bodies like other water mammals, so that we can swim more aerodynamically and the hair that we do have on our bodies grows in the same direction as swimming forward through water currents. Our hooded nose allows us to dive and swim without the water rushing up our nostrils and our nostril muscles are similar to seals and we can partially close them to keep the water out.

Primates and other land dwellers swim with their heads above water, while humans and water mammals dive and swim underwater. The breathing rate of land dwellers and primates is automatically controlled, and only changes as a reaction and not as a conscious plan. Humans and dolphins can control their breathing rate and allows one to purposely hold the breath before diving. Only humans, sea lions, and dugongs (herbivorous sea mammals) have a descended

larynx, which keeps the water out of the lungs while diving. Humans have webbing between the thumb and index finger unlike primates.

Land dwellers and other primates do not secrete oil like humans who have millions of sebaceous glands on our face and scalp that secrete oil to provide waterproofing. Only water dwelling mammals and humans weep tears when they are upset. Scientists believe that the tear glands in water dwellers help balance the salt levels in the body, as well as eliminate waste products secreted during emotional stress.

It is believed that women's hair tends to grow thicker during pregnancy because it was once essential for their babies to hold onto their mother's long hair while swimming and therefore women rarely go bald. The breasts of female primates do not protrude like human female breasts, which are quite like female manatees (herbivorous sea mammals). Protruding breasts are ideal for feeding babies while in water, providing a way for babies to grasp onto the mother while nursing.

Human and water mammal genitals are located on the front of the body. The vagina of most primates and land dwellers is situated beneath the tail. Land dwellers copulate with the male behind the female because mating in trees or on the open ground makes this the most stable position. Only water dwelling mammals mate face to face.

Hardy and Morgan have argued that humans' principal diet was fish and other aquatic animals and sea weeds, which they obtained by diving or wading. This healthy iodine-rich diet helped the human brain grow significantly and proportionately larger than primates and land dwellers. Hardy believes that humans first developed tools to catch fish more efficiently and because females gathered sea weeds, crustaceans, shell fish while wading in cool waters and consequently developed more subcutaneous fat in their lower bodies.

Our upright posture is ideal for wading and swimming and the human body has difficulty adapting to the stress of living on land and causes back pain in many people who find it very relaxing to be floating in water. The moment we stand up, our body reacts to the stress by immediately hoarding its inner salt supply.

The final input that caused us to become bipeds was the need to carry our babies once we began to return to a more terrestrial life. We now had no body hair so our young could no longer cling to us and the fat designed to buoy up the child in water now weighed it down on land. Therefore, our children resorted to crawling which is a terrestrial dog paddling never used by other apes.

This was when crying probably developed because it is another very unusual behaviour that could have only evolved during a time of difficult circumstances. While all other young primates keep quiet when separated from their parents, our young do the opposite and give forth with the loudest, and most sustained noise uttered by any young primate. Normally this is very dangerous behaviour as it quickly attracts any predator after an easy meal. It could only evolve if these risks were outweighed by the risk of the mother wandering out of ear shot because she had not yet adjusted to her new responsibilities of pandering to her now even more helpless child.

It is our large brain, with our remarkable ability to intellectualize, that really sets us apart from the other animals. Actually, it is the neocortex, the outer surface layer of the brain that is mainly responsible for conscious thinking. It is greatly enlarged but, this does not really set us apart as it is a normal trend for social mammals. A lemur's neocortex, the most primitive of the primates, makes up about half of its brain and these are animals that live in social groups of about ten individuals. A baboon's neocortex takes up 75 % of its brain and they live in groups of fifty or more. The size of the neocortex increases with the size and complexity of its society and so it is social intelligence

that has given us such large brains.

By comparing different species' brain size with the size of their communities, scientists have uncovered a very simple and general rule relating the two. The great apes have the largest neocortex and the rule applies to them as well. In order to better survive the different species, congregate in different sized communities and the larger and more complex the group, the larger and more complex the neocortex must be. Gorillas, that are large and powerful vegetarians, need only to congregate in groups of about ten whereas chimpanzees best survive in groups of fifty and so have a larger neocortex than the former. When we apply this rule to humans, we find that our larger brains have evolved because the optimum size for a successful human community is about 150.

Professor Robin Dunbar of University College, London, an anthropologist who has been studying this phenomenon, has discovered that according to the size of our neocortex the perfect number of people for a human community is 148. To test the truth of this theoretical figure he has been examining the numbers that people usually group themselves into. Examining the research into primitive hunter-gatherer societies has shown that clan size does indeed average out at 153. The clan being the most close-knit grouping in a tribe that have common land ownership and who celebrate coming of age ceremonies.

These days most of us live in cities numbering millions of people however Professor Dunbar has found that we still group ourselves into units of 150. In our armies, the smallest unit is a company, which consists of 140 men. In the business world it is well known that companies with less than 150 people work very well on a person to person basis while larger companies need a formal hierarchy if they are to run efficiently. When studying fellow scientists, it was discovered that each scientist tends to pay attention to the work of about 150 other scientists.

What all this means then is that our great intelligence exists because it was essential for us to gather into groups of about 150 individuals for our long-term survival. Groups of less than 150 would have less chance of defending their territory and of, perhaps hunting, gathering and eventually, growing enough food. There may have been environmental constraints on groups larger than 150 in that the food resources may not have been able to supply enough nutrients on a sustainable basis throughout the area that a group could cover.

To live in any large community the inhabitants must be able to identify the individuals and handle the complex social interactions that result. So as the size of our communities increased so our neocortex was forced to evolve ever more complexity, to enlarge to its present size, to be able to handle the extra information coming in.

We humans diverged from our chimpanzee ancestors sometime between six and eight million years ago, when we moved out of the forests to colonize the seashores and became more aquatic as we consumed the rich diet in the sea shallows. Professor Michael Crawford, of the Institute of Brain Chemistry in London, has discovered that Docosahexaenoic Acid is crucial to the high degree of human brain development and this acid is found in its highest quantities only in sea-based food chains. His findings continue to confirm that it was our move from forest to seashore that converted us from chimpanzee to human and with a rich seafood diet full of Docosahexaenoic Acid our brains could further develop. It is no coincidence that the only other mammals with brains large and complex enough to rival human brains are the Cetations, whales and dolphins, that also exist on the acid-rich sea foods.

Social organization gave us our large brain and it also shaped our bodies in that it produced males that are larger than females. Most societies try to maintain that we are monogamous beings that develop faithful life long relationships between men and women. However, our different sizes show us that we have always been slightly polygynous and fit in with other mammals where the average

harem size increases with the ratio of the male body size to the female body size.

If we had always been strictly monogamous in our relationships men and women would be the same size, as it is with the gibbons, the tree - swinging apes of Asia, that are strictly monogamous. Species that have monogamous relationships do not create competition between the males and so males and female look identical. Species that are polygynous create great competition between the males and so male body size increases depending upon how many females the male will try to keep for himself. Men are only slightly larger than women, so we are only slightly polygynous whereas gorilla males are twice the size of females and have harems of three to six. An elephant seal male weighs three tons compared to the female's weight of seven hundred pounds and his average harem consists of forty-eight females.

It is interesting to note that the only reason women look different to men is because we are polygynous, and the competition has created marked differences between the sexes. These secondary sexual characteristics play a role in attracting mates and so men have retained a hairier body with facial hair and a very large penis while women have lost most of their body and facial hair and have developed large breasts. If polygyny had never been a part of human relationships, men and women would today be the same height and equally hairy, women would not have such large breasts and men would not have such a large penis.

Penis length amongst apes is interesting to compare and studies have shown that the erect penis for the gorilla averages three centimeters or one and a half inches, for the orangutan, it is only slightly larger and for the chimpanzee, it is seven centimeters or five inches. Why then do men have an erect penis length of twelve and a half centimeters or five inches? It is certainly not the duration of coitus which averages one minute for the gorilla, fifteen minutes for the orangutan, seven seconds for the chimpanzee and four to five minutes for humans. Nor does it relate to the copulatory positions because although the common chimpanzee prefers sex from behind, the face to face position is preferred in pygmy chimpanzees, the gorilla likes both positions and the orangutan with their greater average sexual durations than even humans and a tiny erect penis, make love face to face, dorso-ventrally and with sideways positions while hanging from a tree branch.

The enormous attention-getting penis of the human is an organ of display, not for the women but for other men who would feel threatened or inferior and their status lower on the social scale if they possess a smaller erect penis. Today's men still have an interest in the potential size of other men's organs but a million years ago the men probably displayed their erect penises like displaying male birds of paradise with the women looking excitedly on, comparing lengths and trying to make a choice.

The size of the human testicles is also interesting to compare with the other apes and British anthropologists have identified a trend that proves that testes size equates with the amount of copulation that each species indulges in. The size of the human testicles grade in very well because the gorilla's testes weigh 28 grams (1 oz.), men's testes average 42 grams (1.5 oz) and the chimpanzee's testes weigh 113 grams (4 oz). Testes size has nothing to do with the weight of the animal because a 200-kilogram (450 lbs.) gorilla has tiny testicles, while a 45-kilogram (100 lbs.) chimpanzee has enormous testicles. We can theorise from this figure that a chimp has a great deal more sex than a gorilla. Field studies have shown that the female gorilla doesn't resume sexual activity until three or four years after giving birth and then is only receptive for a couple of days a month. So even with a harem of several females, sex for him occurs only occasionally.

As far as sex goes chimpanzees have a much better time than gorillas, and even humans, because they are completely promiscuous and the males of common chimpanzees have daily opportunities to copulate, while the pygmy chimpanzees mate several times a day. Promiscuous species are forced to mate often and pump in a large amount of sperm, because the male that injects the most

semen has the best chance of fertilizing the female. Consequently, the chimp has a set of testicles large enough to do the job. Humans have a medium size set of testicles because we make love more often than the gorilla, but a lot less often than the chimp.

As we have adapted to living in different environments, and consequently adapted to living in large social groups in order to better survive, so natural selection has weighed upon us and shaped our body and brain. However, the origin of the different races of humanity have more to do with sexual selection. After developing the Theory of Natural Selection, Darwin realized that many animal features had no obvious survival value but did play an essential role in reproduction by attracting the attention of members of the opposite sex, or by intimidating other members of the same sex. The enlarged human breast and penis are good examples of this and so are the bright colours and spectacular tails of many male birds, the large antlers of male deer, the manes of male lions, and the bright red buttocks of female baboons in oestrus.

Humans pay a lot of attention to the size, shape and colour of breasts, body shape, the amount of body hair, and the colour of the hair, eyes and skin when selecting sexual partners. People in different parts of the world define beautiful breasts, body shape, hair, eyes and skin by what is familiar to them and this tends to maintain each population in conformity with those standards. Individuals who deviate too far from these standards have greater difficulty obtaining a mate. It was Darwin who first understood that sexual selection was responsible for the origin of the different human races.

Of course, natural forces operate at the same time so the different aspects of each person result from a mixture of environmental and sexual selections. Eskimos have a compact body shape to conserve heat, while the tall slender shape of the Masai in Africa is best for losing heat. Many black Africans have the sickle-cell haemoglobin gene that protects against malaria. Andean Indians have large chests to extract more oxygen from the thin air at high altitudes and the Northern Asians have slit-like eyes that give protection from the cold and the glare of the sun on the snow and ice.

All of these are examples of natural selection while the secondary sexual characteristics, such as the colour of the hair, eyes, and skin are examples of sexual selection. Because we needed to live in large social groups to survive natural selection also modified our behaviour and our reproductive physiology.

Human females could no longer change colour to advertise impending ovulation and sexual receptivity like the other apes because this would cause serious disturbances to the harmony of the group. Little work could be done if all the men were constantly watching to see which women would change colour. If we also continued to make love in public like most of the other mammals, do these would further distract us from our work, create much aggression, and so damage the harmony of the group

If a women's breasts and buttocks continued to swell and brighten in colour to attract the males as occurs in the other apes, the family would quickly break down because the man could make love to his wife while she was ovulating and could then safely neglect her to chase other women, secure in his knowledge that his wife was now not receptive or already fertilized. Women also had to become sexually receptive almost constantly. Instead of having it confined to a short oestrus phase as in other animals, the man's sexual attention stayed with the wife and bound him to her so that he would stay around and care for the children.

The menstrual cycle length varies more between women or from cycle to cycle in a given women, than for any other female mammal, and this is another adaptation to conceal her ovulation. Along with constant receptivity and hidden brief fertile periods most human copulations are at the wrong time for conception. Copulation is a dangerous luxury that burns up valuable calories and wastes

opportunities to gather more food while vulnerability to predators and territorial usurpers is increased. Our great interest in sex therefore evolved because it was essential for our survival in that it cemented the bonds between males and females, creating the human family. Keeping sex private then meant that groups of couples could exist together for their mutual social and economic benefit.

All these features, that go to make humans so distinct when compared to the other animals, evolved millions of years ago. Until recently, we continued to act like all the other species, in that we stayed within our ecological niche and did not try to change things. We had already been using stone tools for two and a half million years and during all that time these had continued to be crude instruments with little innovation.

We had stayed in our original homeland of Africa with the other chimpanzees until between one and two million years ago when we began to migrate to the warm areas of Europe and Asia. A portion of a human skull was found in central Australia and has been controversially dated at one hundred and thirty thousand years of age and it has been estimated that humans may have reached the Australian landmass thirty thousand years earlier during a previous ice age when sea levels were lower. Genetic studies indicate that the first humans reached Australia between 60 and 65 thousand years ago and human burials have been dated in Western New South Wales at between 50 and 55 thousand years. To get to Australia would have meant a sea voyage of approximately eighty kilometers and would have probably been undertaken using large bamboo rafts. People would have been aware that there was another landmass beyond the horizon simply because the smoke from large bushfires is visible in the sky when viewed from the closer Indonesian Islands.

Fossils of our previous species, *Homo erectus*, have been found in Java and so were named Java Man. Fossils of a somewhat similar human have been found at Cow Swamp in Victoria, in south-eastern Australia, with very robust features and these have been dated at only nine thousand years of age. Fossils of a very graceful human, with a smaller stature and more rounded head have been found at Willandra Lakes in western New South Wales, similar fossils have been found in China, and both have been dated at about fifty thousand years. Obviously these two quite different races reached the southern landmass and shared the continent and it is believed that interbreeding between the two produced the modern Aboriginal people.

When scientists recently studied and dated the age of the genes of all the different races of humanity, using the molecular gene clock, they discovered that each race had been in existence for approximately one hundred thousand years. Controversially though, they received a reading of four hundred thousand years for the more robust Australian and one hundred thousand years for the more gracile Australians. However, subsequent studies may find that these dates are incorrect. It is generally believed that our species, *Homo sapiens*, diverged from the more primitive *Homo erectus*, approximately half a million years ago somewhere in South-east Asia.

For the evolution of a new species, a population must be entirely isolated. Perhaps the only place anywhere on the globe where humans roamed that could have been completely isolated for twenty to thirty thousand years was on the Australian continent during the interglacial periods when sea levels were high. There is a possibility that it was on this Australian continent that modern humanity was born, and the Aboriginal people are quite adamant that this is where they first appeared. However, South-east Asia is in immediate proximity and either *Homo sapiens* reached this continent at a very early stage or evolved here and then spread to the rest of the world. There is also conflicting evidence that the different races evolved separately in their own homelands.

The renowned rock art galleries in Kakadu National Park in the Northern Territory have been dated at between thirty and sixty thousand years of age so that we can now say for certain that the Aboriginal people have the earliest known artistic culture and that they therefore had a language and perhaps were the first people to develop the capabilities that finally made us distinct from the

other animals. They may have been the first humans that learnt to talk together and so created the first languages, religion, art and technology. Such things were certainly not occurring in Europe at that time, or anywhere else that we have evidence for.

About one hundred thousand years ago Neanderthals were regularly using fire throughout Europe and western Asia and it wasn't until about forty thousand years ago that they were displaced by modern humans possibly invading from Asia.

It was the development of language that radically changed humanity. Jared Diamond in his wonderful book, *The Rise and Fall of the Third Chimpanzee*, is essential reading for everybody and from where much of the information in this chapter has come from. He argues very convincingly that this "great leap forward" in human history occurred because of an evolved mutation in the structure of the muscles in the larynx that gave us extra fine control over spoken words. Before this event language was crude and communication difficult so no brainstorming, planning or philosophy occurred.

'A tiny change in our anatomy resulting in a capacity for speech would produce a huge change in our behaviour', states Diamond. Once humans had learnt to talk to one another and discuss problems, strategy and beliefs so art, technology and religion came into existence.

Researchers have identified a language feature that they say is unique to the human brain and is shedding light on how human language evolved. Researchers at Emory University's Yerkes National Primate Research Centre in Georgia studied the arcuate fasciculus, a pathway that connects brain regions known to be involved in human language. These parts of the brain include the so-called Broca's area in the frontal lobe, toward the front of the head, and Wernicke's area in the temporal lobe, at the side of the head.

The researchers compared the size and trajectory of the arcuate fasciculus in humans, rhesus macaques and chimpanzees. The human version has "much larger and more widespread projection to areas in the middle temporal lobe, outside of the classical Wernicke's area," said James Rilling of Yerkes, who led the study. Human brain cells have more complex interconnections in and around brain areas linked to language. The study marks the first use of diffusion tensor imaging, a non-invasive imaging technique, to compare human brain structures to those of chimpanzees, our closest living relative.

"We know from previous functional imaging studies that the middle temporal lobe is involved with analysing the meanings of words. In humans, it seems the brain not only evolved larger language regions but also a network of fibres to connect those regions, which supports humans' superior language capabilities." said James Rilling in the study which was published online in the research journal *Nature Neuroscience*.

Jared Diamond believes that these first truly modern people with a complicated spoken language had such an advantage over the other humans that they displaced them and eventually migrated into Europe. Here they met the Neanderthals, a race of humans adapted to ice age conditions, though they also lived throughout the warmer regions of Europe and western Asia. They had a life span of about forty years and therefore their women had probably not developed menopause. Their language and tools were primitive, and they buried their dead with offerings of flowers and food so they may have developed early religious beliefs. However, they were unprepared for the invasion of anatomically modern people and began to go extinct forty thousand years ago.

The ability to communicate using a complex spoken language became essential for our survival as we used it to transmit information from one generation to the next and this then led us to another of

our life cycle changes, retarded aging. Being able to communicate efficiently meant that we became experts at solving problems and devising better tools, weapons, clothing, containers and more detailed strategies for hunting, fighting and all other aspects of survival. This meant that we could now migrate into new areas which brought us face to face with new predators and new climatic conditions. Our language continued to evolve, and all this new information had to be passed down through the generations and this could only occur if we began to live longer lives.

Few animals rarely survive past their reproductive age because there is no longer an evolutionary benefit for keeping their bodies in good repair since transmitting one's genes to the next generation is what drives evolution. Humans though, live for decades after they have finished reproducing and this could not possibly occur unless it was essential for the survival of the next generation of genes. Aging is due to biological repair mechanisms whereby our bodies are constantly repairing themselves by replacing protein molecules and cells with a limited supply of energy because we cannot metabolize much more than five thousand calories per day. This energy must be allocated to various parts of the body for eating, digesting, thinking, moving, working, rearing children and repairing our body.

Repair work is directed to the most important functioning's of our body and less important repair work is abandoned and so our skin and muscles slowly deteriorate but our mind, our nervous system, heart and vascular system, the digestive system and all our essential organs continue operating almost as good as ever. Eventually though the unrepaired damage accumulates, and deterioration sets in and finally kills us but not before we have ensured the survival of the next generation.

Jared Diamond has examined the aging process and its relationship to natural selection and evolution and explains it as follows: 'How much an animal should invest in biological repair depends on the expense of the repairs and on a comparison of the animal's expected life span with or without repairs.....Natural selection tends to maximize one's rate of producing offspring that survive to leave offspring of their own. Evolution can thus be regarded as a strategy game, in which the individual whose strategy leaves the most descendants wins.'

For small animals that are heavily preyed upon the best strategy is to use all the available energy on producing as many young as possible and not waste energy on repairing a body that is liable to be caught and eaten in the very near future. Large animals such as the big mammals, fast moving animals such as the birds and well protected animals such as the turtles, all invest more energy into biological repair because they can expect to live longer. However, this means that less energy is available for reproduction and so they give birth to fewer young.

This evolutionary strategy game equally applies to humans and has produced a longer average life span for women than for men and has also created the unique human survival adaptation of female menopause. To gain wives and to secure resources for his children and his tribe or nation a man must undertake risks with bold displays, aggression, and stressful maneuvering and fighting that causes high accidental mortality. Therefore, men put more energy into fighting and less energy into self repair when compared with women and so age faster and have a higher non-accidental death rate.

Women have furthered this evolutionary strategy game by turning off their reproduction once they passed through middle age because the risk of her death during childbirth increases with age and her offspring may not be able to survive without her.

Jared Diamond states it very well when he writes:

'Because human infants develop so slowly and cannot even feed themselves after weaning (unlike other apes) the death of a hunter-gatherer mother would have been likely to be fatal to her offspring

up to a later age in childhood than for any other primate. Hence, a hunter-gatherer mother with several children was gambling the lives of these children at every subsequent childbirth. Since her investment in these prior children increased with their age the odds of her gambling paying off got worse and worse as she got older.... Those worsening odds probably led through natural selection to menopause shutdown of human female fertility, in order to protect a mother's prior investment in children. Since childbirth carries no risk of death for fathers, men did not evolve menopause.'

So the development of more flexible muscles in the larynx of a tool-using semi-aquatic chimpanzee, that had evolved a large brain because it could only survive in large social groups of one hundred and fifty individuals and standing erect so that it could carry its heavily blubbered slow growing offspring, allowed it to develop a complex spoken language. To continue to survive it then had to put more energy into the self repair of its body and so retard its aging. This is because a single individual over the age of seventy years may be the only one with a long enough memory or enough knowledge to help the tribe in times of crisis when food supplies or climate deteriorates or when attacked by another clan.

Spoken communication has led us to a higher form of consciousness where we are ever more aware of ourselves and the environment that supports us. We have been able to solve almost every problem that we have come up against and so continue to develop a very remarkable technology that has even taken us off the planet's surface. With the addition of written communication and the computerized electronic media of the internet we have developed a planet-wide communication network that now operates like a single planetary mind keeping most of us semi-aquatic chimpanzees constantly in touch with what is going on around the entire planet. However, the development of more flexible muscles in the larynx of the semi-aquatic chimpanzee has been a total disaster for almost every other life form on the planet. Since it is only the diverse assemblage of life forms that keep the planet alive and recycling its matter and energy, our success is also our disaster.

The next time that you stand in front of the apes in their enclosures at your local zoo and notice the apparent similarities between the gorillas and the chimps try to remember that the closest relationship going on is not between the two species of hairy ape but between the chimps inside the cage and the bipedal, puny-haired but large brained chimpanzees standing outside the cage who are pointing, laughing and chattering. We are in fact a somewhat clever, seemingly hairless chimpanzee that diverged from the other chimps a mere seven million years ago. Of the other great apes, the gorillas went their own way nine million years ago while the orangutan diverged to follow its own line fifteen million years ago.

The smallest of the apes are the gibbons and they were the first to swing off into the trees to follow their own destiny twenty million years ago. The various species are all classified in the genus *Hylobates*, yet some are more genetically distant from one another and diverged further in time than did humans, chimpanzees and gorillas.

Since scientific classification of all life forms must be objective, uniform and based on genetic distance and times of divergence, humanity must then be placed in the same genus as the chimpanzee and the gorilla. For although we warrant our own specific classification, we must accept the reality of our ancestry and our position in the unbroken parade of evolving life. We are in every possible way one of several species of apes. This is a scientific and completely indisputable fact resulting from meticulously detailed, unbiased examination of ourselves and the other life forms in the search for ultimate truth.

Fortunately, we are still able to call ourselves by our own scientific name, *Homo sapiens*, Man the wise, because the genus *Homo* is the oldest, the first officially decided upon and therefore by the rules of zoological nomenclature it takes priority over the newer names of *Pan* and *Gorilla*. But this means that the newer names can no longer apply for our other apes and since we are all closely

related then the name *Homo* must be used for the two chimp species and for the gorilla.

Whether this classification will ever be accepted is debatable. It would be desirable at least from the viewpoint that it may help humanity to realize that we are a part of the living planet. It would mean that there is not one species of human on the planet, there are in fact four. They are *Homo gorilla*, *Homo troglodytes*, *Homo paniscus* and *Homo sapiens*.

There is a simple way of proving that you are an ape and that is to lift your arm over your head. This ability can only happen if it needed to and proves that our ancestors needed to raise their arms above their head so that they could swing below branches, which is what differentiates apes from monkeys. It is also the reason that we do not have tails. Monkeys need them for balance and the more ancient species have prehensile tails so that they can hang from the trees. Apes do not need tails because they can swing below the branches. If intelligent monkeys tried to develop a civilization, they would find that they have a massive problem. They cannot raise their arms above their heads to throw weapons or build efficiently. Lucky for us then, that our ancestors needed to raise their arms above their head so that they could swing below branches.

Until very recently all of us, including our scientists imagined that we saw a fundamental difference between humans and all other life forms. However, the main difference is that one species of ape, *Homo sapiens*, is overpopulating and devastating the entire living planet and may in the process exterminate itself. One species of human is protected, idolized, and cherished, while the three other human species, magnificent, noble, gentle, and intelligent beings are treated with disdain and regarded as only suitable for amusement and experiment while their last remaining natural populations are persecuted and exterminated. This kind of treatment is to be expected if we are nothing more than animals. If we regard ourselves as something more and wish to awaken the planetary mind, then we must regard all life forms as an extension of ourselves and work together to protect our ecosystems.

Chapter Eight Humans and Extraterrestrials as Populations of Symbiotic Bacteria

Is the world really constructed out of animals and plants existing within their own ecosystems that make up the living planet or can we delve even deeper into reality to find out how we really exist? The concept that we have of animals and plants is once again an illusion because they are not the single entities that they appear to be. We are used to looking at everything at our own level of organization and that only shows us one facet of reality.

As we know, all animals and plants are built up out of cells that are entirely responsible for everything that happens within and without the living organism. The colours, the shapes, the ability to breath, to eat, to photosynthesize, to metabolize, to move, to see, hear, smell, feel, to think, to reproduce, are all possible because of the actions of all the different kinds of cells that make up our bodies and minds.

However, what are the cells that are of such ultimate importance and yet so minute as to be invisible to the naked eye? When one focuses down with an electron microscope one discovers that a single cell is in fact an amazingly complicated, self-contained world packed with an enormous diversity of living organisms. Each cell, and there are billions to trillions in every life form, is something like an individual living planet and they are the only home for enormous numbers of tiny creatures all living together in symbiotic harmony as all the life forms on Earth normally do.

Cells exist in a great variety of shapes and sizes and this is related to the purpose that they fulfill in the multi-cellular organisms that they have created and in which they have found their ecological niche. Each cell is enclosed in a plasma membrane which encloses and protects the internal organs, termed organelles. The most important of these is the nucleus, the mind of the cell, which is enclosed by a nuclear membrane and contains a gel-like substance in which the chromosomes exist and one or more nucleoli.

Chromosomes are thread-like organisms consisting largely of nucleic acids, mostly D.N.A. and R.N.A which function as the carriers of the genes and therefore the ultimate controllers of cellular processes and in turn all of living reality. The cells of every type of life have their own characteristic number of chromosomes and the cells of humans contain forty six each. The nucleoli are spherical bodies produced by chromosomes composed of protein and R.N.A. and participate in the process of protein synthesis. Once again, a particular number of nucleoli characterize each kind of cell.

Besides the nucleus, that contains the chromosomes and nucleoli, there are many other cell organs all of which fulfill essential services as do the organs in our bodies. There is the endoplasmic reticulum that functions as a network of canals conducting material throughout the cell and through the cellular membrane to make contact with the outside world, as well as keeping all the other organelles in their relative positions. Next we find that the cell has what almost amounts to tiny lungs, the mitochondria where cellular respiration is carried out. Then there are tiny granules termed ribosomes where protein synthesis occurs, golgi bodies that synthesize cellular secretion products in the glandular organs of our bodies and lysosomes, which break down and replace older cellular organelles and rid the system of foreign or unwanted particles.

Other granules, centrioles, play a specific role in cell reproduction while kinetosomes control surface flagella and cilia, which protrude from the cell, surface to act as minute waving arms that serve for cell locomotion or to create food and oxygen bearing currents. Cells with these waving cilia occur in the lining tissues of breathing, alimentary and reproductive channels and in sense organs such as in the ears, and also in the eyes, where the flagellate cells form the rod and cone cells of the retina. The only reason why we can see at all and therefore learn about reality is because tiny living organisms have made up our very eye balls and they have turned their tiny waving arms into the rods and cones that permit our colour vision.

The cytoplasmic gel that makes up much of the cell's body also contains additional granules and fluid-filled droplets called vacuoles all performing a large variety of functions. Food vacuoles transport nutrients from the cell surface into the interior while excretory vacuoles carry the waste materials to points of elimination. There are various granules that act as specific storage sites for essential resources like glycogen, fat, water, and the pigments that colour our skin and a nervous system of long thin protein fibrils such as the contractile myofibrils and conducting neurofibrils.

The most important organs of a cell are those that exist only in plants and without which the Earth would be as dead as Mars. These are the chloroplasts, the bright green, usually disk-shaped photosynthesizing plastids that are entirely responsible for our conscious existence on the surface of the planet. For without them there would be no life at all.

There are many plastids in the cell of a plant, some are responsible for the storage of food products and others contain the pigments that cause autumn leaves to appear red or gold. But it is only the chloroplasts that have the ability to convert the sun's radiant energy into the chemical bond energy upon which virtually all other metabolic reactions that cause a planet to live, depend. The chloroplasts hold molecules of water ready to be struck by the photons or particles of light to split the oxygen out of the hydrogen, which escapes to form the atmosphere we breathe. The energy rich hydrogen atoms are then transferred and attached to the carbon dioxide molecules absorbed from the air to produce the carbon chains called carbohydrates. These constitute the skeletons of all the organic molecules of metabolism, and which therefore provide the building blocks from which the ecosystems that make up a conscious living planet are constructed.

Notice how the cell is constructed in a similar manner to ourselves in that it has its own form of brain, its own form of blood system, nervous system and various organs all conducting essential services so that the cell may live as a single entity. Yet all these single entities, these cells, have learnt to congregate into enormous populations, have learnt to adapt and live together in a most perfect society, the physical, mental, and spiritual result of which is we along with every other living multi-celled organism.

However, if all our bodies and all our organs are constructed of these smaller living entities, what are the bodies and constituent organs of a cell constructed of? They too are constructed out of still smaller living entities, one of the most simple and primitive of all the organisms, bacteria. All the parts of a cell consist of bacteria living in symbiotic harmony and just as the cells have adapted and evolved to produce every organ of our body, including our wonderful brain, so these bacteria originally adapted and evolved and learnt to live together so that they produced every organ of the cell including the genes that constructed us.

Lynn Margulis, a scientist working on the symbiotic theory of cell evolution, has stated that the evidence for symbiotic origins is strongest for the plastid organs in the cells of plants including that of the all-important photosynthesizing chloroplasts. These organs in the plants cells have their own D.N.A. their own messenger and transfer R.N.A. and their own enzyme systems to make their own material and on top of that they reproduce like a cell dividing into two plastids. Lynn Margulis states that:

‘The plastids R.N.A. is more similar to a free-living bacterium than it is to the R.N.A. of the cell it is sitting in. Similarly, in animal cells some of the mitochondrial proteins are much more similar to the proteins of free-living bacteria than they are to the rest of the cell they are in’. So, the mitochondria and the plastids, where the cell's essential work of energy conversion goes on, are the descendants of bacteria that once lived as free agents but eventually formed symbiotic relationships and which have long since lost their independence.

At least three separate bacterial ancestors developed increasingly intimate partnerships to produce our animal cells, one became the nucleocytoplasm, another became the mitochondria and a helical motile bacterium became the waving cilia that in our eyes evolved into rods and cones so that we may see. These minute chemically complicated micro-organisms then have been responsible for the entire development of complex, conscious life on this planet. It is not competition then that ultimately brings success, it is co-operation that powers evolution, and since we are part of the wonder of it all we must give up our dangerous desire to compete and instead co-operate if we wish to ultimately survive.

A perfect example of how co-operation is essential for long term survival is to look at one of the oldest and most successful of life forms, the ever-present termite. Termites are not white ants as they are popularly called but in fact are tiny cockroaches that learnt to eat indigestible timber hundreds of millions of years ago. Living in the termite's gut is a little protozoon called *Mixotricha paradoxa*, which break down wood into digestible molecules so that their host can make use of it. However, the tiny protozoon is in fact three different species of bacteria living symbiotically together to produce an organism that can digest wood to feed the termite so that all can live. The termite, like the human, is not the end of the story. For as all the different bacteria have learnt to live together to form a single successful individual so all the termites and all the other life forms have learnt to live together to form a larger successful individual, the biological sphere that we call the living world or "Gaia".

However, what happens when one of the originally symbiotic organisms that make up a larger living entity begins instead, not to live in harmony with its neighbours, but begins to believe that only it is of importance and starts to compete with and replace its neighbours? That organism becomes a disease. For that is what a disease is, an organism out of control, experiencing a population explosion and devouring the very environment that directly supports it.

Most diseases consist of either a prion, a virus or a bacteria, what we generally refer to as a germ, devouring the cells of the body or a cancer of mutant cells replacing the normal cells and in both cases the environmental stability of the body is destroyed, the entire system collapses and the patient dies. Now a disease more horrific than any other has recently developed and it is destroying the environment of its own body so rapidly that total collapse of the system, the ecological system, is clearly immanent and this disease will almost certainly be the death of us all. That disease is us, twentieth century humanity, rapidly over exploiting and over developing the natural world, replacing it with ever greater numbers of ourselves that need to consume ever greater amounts in a non sustainable population explosion.

There can be no doubt that if humans and all other life forms are built up out of cells and if those cells are entirely built up out of bacteria, the entire living world is a symbiotic community of multi-bacterial organisms. Our lives have been and always will be a bacterial event. As we look about our world all its beauty is due entirely to bacteria taking advantage of the sun's radiation and this includes are own, much admired, personal attractiveness.

The greenery of our gardens and forests is entirely created by the plastid symbiotic bacteria that form the chloroplasts that turn the sun's radiant energy into food, oxygen and energy so that we and all else may live. The colours and the structure of the flowers and the bees, butterflies and birds that visit them are due entirely to the sanity of bacteria living together in intimate partnerships so that ecological systems could develop and the surface of a once dead planet could now live and think and wonder at it all. It is bacteria, generally looked upon by humanity with disgust as the lowest form of life, that has taken a dead and useless planet and created life, consciousness and all that is of ultimate beauty, sanity and health. It has created a living world, it has created all of life, it has created humanity and therefore our cultures, religions, civilizations, technology, our justice, and our belief in God.

Because a film of bacteria covers virtually everything on the planet and because all living things are congregations of bacteria it is therefore a reality that we have never seen anything in our lives in this world that wasn't bacteriological. The existence of this book before your eyes is due almost entirely to the work of bacteria and as you focus your eyes you should remember that you can only see because your very eye balls are made of bacteria. Furthermore, the holographic image that you regard as sight and which is projected into your brain, a mighty brain, built only by bacteria out of bacteria and for the use of bacteria, along with all your other bacterial-built senses, is your one and only method of gaining a mind, a consciousness and therefore an ability to live and observe, to communicate and think. All is due to bacteria that lowest form of life that is generally regarded only as the cause of disease is in fact also the highest form of life because it is the only form of life and the only known form of consciousness.

Remember once again that the words bacteria, virus, or germ is human words for human concepts explaining a phenomenon of which we are only just beginning to understand. And that the universe is constructed out of levels of organisation from the simplest to the most complex. This means then that all points of view are valid but only from that view point. There can be no doubt that we are individual human beings, often of great wisdom, righteousness, and sanity but at the very same time we are also what we call apes and animals and yet we are also living cells and ultimately bacteria. Bacteria are reproducing molecules of consciousness. The minute particles of matter-like and ideal-like consciousness forms part of the unbroken wholeness that presents itself to us as a curvature of the space-time continuum. In addition, all are concepts in the human, ape, animal, bacterial, universal mind.

We can therefore not be separated in any way from the rest of the universe for we are a tiny conscious piece of the very material from which the universe is constructed. But are only of value to us and the rest of reality if we regard all who exist and all that exists as equally deserving of our respect and love. Working for the benefit of not just ourselves but for all the other organisms that together make up a healthy world.

Any deviation from this path, to work for the benefit of one's self at the direct expense of others can only be regarded as a sign of a disease. We are constructed out of the living matter to which we have designated the name "bacteria". We can only ever exist in a bacterial environment. A single germ of life attached to a heavenly body existing by itself in the immense, sterile, void of space. If your actions in any way help to destroy the body and mind of this living planet you can only accurately describe yourself as a disease.

When you compare the size of your body to the size of a bacterial disease that may be threatening your health and the size of this single living planet to the size of us humans one can notice a close parallel. Like your body, which is the natural habitat of from 5 to 6 billion individual life forms, the planet is covered with a film of bacteria and just as the bacteria appears extremely minute in relation to the size of your body so humanity and the rest of the ecosystems appear minute in relation to the size of the planet which is the natural habitat of currently 6 million humans.

Since we are a congregation of symbiotic bacteria dwelling amongst a much larger congregation of symbiotic bacteria if we fail to live in harmony, if we begin to destroy and replace the other organisms with ever more rapidly growing numbers of our own organism, if we begin to destroy the entire ecosystems which are the planetary life support systems or organs, if we begin to pollute with deadly substances the once crystal clean environment which is the body of the living planet then we must admit to the truth that we are indeed nothing more than a planetary disease. Looking at the planet as a whole, our scientists have been examining the entire organism with all its constituent life forms and the extremely rapid die-off everywhere being caused by modern humanity and they are being forced to consider the fact that on the full-scale viewpoint *Homo sapiens* could be described as a planetary virile disease.

In the long run it does not matter how intelligent humanity was, how particularly brilliant in producing fine works of art, beautiful music, sophisticated philosophies, complicated technology and god-like visionaries. All are of absolutely no consequence if we manage to destroy ourselves along with our ball of life while engaged in the production of these wonderful things. Yet when we look around the world what do we find but that the human population is increasing so rapidly that it is quite out of control while the resources needed to supply it are dwindling constantly.

We find that the planet's natural and essential covering, the forests, without doubt one of its most important life support organs, is being recklessly devastated by logging and clearing so that in many areas complete die - off is occurring and it is turning to desert. The diverse range of constituent organisms, plants and animals, essential for the cyclical redistribution of energy and chemical matter and the continuation of genetic evolution, are being exterminated daily everywhere. We have now poured so much filth and poison into the breathable atmosphere, into our own water supplies and into the ocean that our very environment is turning acidic and acid rain, dead lakes and river systems full of toxic blue-green algae are the result. Yet more industries are daily being set up to consume more of our resources and add more to the pollution.

Almost everything that modern humanity is currently undertaking simply resembles from a planet-wide view point the die - off symptoms of a virile infection. The most experienced environmental scientists from around the world are stating that if things continue as they are at present the intricate and diversely interwoven living environment will experience total ecological collapse, the results of which will be as harmful to humanity as a full-scale nuclear war. The body and mind of the planet will collapse and die and take all of humanity with it. We will go down in the history of the universe as not the planetary intellect that we once were but a vile and destructive disease responsible for killing a unique life form that was ready to attain much importance as an intelligent consciousness. From then on there will be no life or love, no intelligence or godliness in this part of the universe but instead a random jumble of chaotic unconsciousness.

Over the eons the surface of our planet has been diversifying and developing its body and mind via the living organisms that have constructed themselves into a single living environment that covers the globe. After three hundred and fifty thousand million orbits around our star, or what we term years in our attempt to understand the length of time that it has taken, we humans have been created by that living environment and in turn we have developed the intellectual mind of the planet.

Our scientists have carefully differentiated between all the organisms, given them scientific names, and then realized that those differences all run into each other. That all are not individual entities, single events, but a continuous happening. An unending task in the development of life and consciousness. The living surface of the planet is not composed of independent life forms but interdependent and constantly evolving components of a single life form, the only one that we presently have known to exist. Though there may be a great many more scattered throughout the universe that are too far away for us to examine.

As science has proceeded in its investigation of the world it was discovered that several kinds of impossibilities were in operation if we continued to believe that this planet was just a suitable place for life forms to colonize and adapt to. This then led to the most exciting of scientific discoveries that means that our everyday view of the world is really the internal view of a gigantic living being.

For a start it was found that during the three and a half billion years of life on earth the sun's output of energy has increased by at least thirty percent and that the planet should have been frozen solid during the first one and a half billion years when the sun was producing less energy. Because of the sun's continuing fluctuations, the temperature here should be oscillating between - 50 degrees Celsius and 100 degrees Celsius. However, the temperature has oscillated between 10 and 20 degrees Celsius during all that time because the living surface of the planet has been keeping its temperature constant.

The atmosphere was also found to be quite impossible unless it had been created and sustained by the multiple living organisms that work together to produce the living planet. Its strange composition of gases could not have arisen or persisted by chance and in fact is constantly being examined and regulated. The oxygen level is being kept at 21 % and even a small increase in concentration would cause total devastation across the globe for anything that could burn would easily catch fire and do so with the extra oxygen available. If it was not for a planet-sized control mechanism in operation the oxygen content in the atmosphere would slowly decrease and carbon dioxide would snuff out all life.

Another amazing fact to be discovered was that the salt concentration in the world's oceans has little changed in three to four billion years. Yet there is so much salt being washed out of the rocks and discharged into the sea, calculated at 540 megatons each year, that the oceans should have become supersaturated with salt within eighty million years and so should now be dead.

It was discovered that more sulphur is being washed into the sea from off the land that could be derived from all known sources. Iodine, which is used in the thyroid gland to produce hormones that regulate our metabolic rate and so is essential for all of us advanced terrestrial life forms, is appearing in the land animals from an unknown source.

Jim Lovelock, a British scientist and a visiting professor in the Department of Cybernetics at Reading University, specializing in gas chromatography, began to tackle those problems when he worked with N.A.S.A. on the Viking space probe to discover whether life existed on Mars. He discovered that the chemical properties of the atmosphere and the oceans were biologically

controlled and in 1969 presented his Gaia hypothesis at a scientific meeting on the Origins of Life at Princeton University in New Jersey.

He defined Gaia as ‘... a complex entity involving the Earth's biosphere, atmosphere, oceans and soil; the totality constituting a feedback or cybernetic system which seeks an optimal physical and chemical environment for life on this planet. The maintenance of relatively constant conditions by active control may be conveniently described by the term "homoeostasis.”

He defines cybernetic systems as ‘self-regulating systems of communication and control in living organisms and machines.... the primary function of many cybernetic systems is to steer an optimum course through changing conditions towards a predetermined goal.’

Homoeostasis is defined as ‘that remarkable state of constancy in which living things hold themselves when their environment is changing’.

The Gaia theory therefore states that the Earth acts like a super organism, with all its biological and physical systems cooperating to keep it healthy.

Jim Lovelock and other scientists have begun to look for the actual recycling pathways that keep our planet alive and healthy. They have been responsible for discovering the answers to the aforementioned questions and a study of the chemically reactive gases of the air is tending to show the function that each fulfils. Nitrogen which makes up 79 % of the air acts as a pressure builder and fire extinguisher, oxygen at 21 % is the energy reference gas, carbon dioxide at 0.03 % is essential for photosynthesis and climate control while the other gases of our atmosphere that exist in much smaller quantities provide a variety of other important functions.

Methane, or marsh gas, ventilates the anaerobic zone of life where it is produced at a rate of at least one hundred million tons every year by the microorganisms in the oxygen-deficient muds and sediments of sea beds, marshes, wetlands and river estuaries where the burial of carbon in the form of plant and animal remains takes place.

Methane, along with nitrous oxide, regulates the atmospheric oxygen supply and the latter, along with methyl chloride, regulates the ozone supply which has to be kept at just the right amount, for too little will allow ultra-violet radiation to scorch the Earth's surface and too much ozone will mean insufficient exposure and thus a reduction of vitamin D in our bodies. Another important gas is ammonia, at least one thousand megatons a year of which is produced in the soil and in the sea, is entirely of biological origin and is essential in the control of the acidity of the environment, keeping the pH of rainwater at 8, the optimum for life.

The method by which salt is removed from the ocean is hardly understood. It is believed that the countless billions of free-floating, single celled microscopic plants, called phytoplankton, especially the coccolithophores with their minute shells made up out of calcium carbonate, and diatoms, with their tiny skeletons of silicon dioxide, which at death produce a constant rain of dead organisms from the surface to the sea floor, may act as conveyor belts that trap the salts as they fall. They are then buried in consecutive layers of sediment.

Of much interest are the sulphur gases, especially dimethyl sulphide, which is produced in enormous quantities by several species of algal sea weeds dwelling in the shallow seas of the continental shelves. The species, *Polysiphonia fastigata* is particularly productive in this regard, taking the sulphur ions out of the seawater and discharging it into the atmosphere where it is blown onto the land and ensuring a necessary recycling balance between the aquatic and terrestrial ecosystems. Other species of sea weed such as Kelp, *Laminaria*, gather iodine from the sea and produce methyl iodide which is also blown back to the land through the atmosphere and becomes

an essential ingredient available to the terrestrial life forms.

Even more important is the role that single-celled marine algae perform as they float on the surface of the world's oceans. Bill Hamilton, from the University of Oxford, renowned for his work on social and sexual evolution and Tim Lenton, an atmospheric chemist from the University of East Anglia, have discovered that marine plankton and other microbes are responsible for a massive global regulatory system that keeps the climate stable. Most algal species also produce the gas dimethyl sulphide (DMS), which reacts with oxygen in the air above the ocean, to produce sulphate aerosols of tiny solid particles on which water vapor can condense to form clouds. The algae best known for producing DMS are the dinophytes and haptophytes, very small species that easily float in air, though their usual habitat is the foams of algal blooms on the ocean's surface.

The high concentration of photosynthesizing cells absorbing sunlight heats up the water surface and the air just above it which creates a convection air current or breeze which ruffles the water surface and creates bubbles. All kinds of microorganisms are concentrated on the surface of the bubbles which then burst and propel them into the air.

The DMS gas produced by the algae then takes them up into the upper atmosphere, using the energy of heat, produced as the water condenses around the sulphate aerosols, which warms the surrounding air, creating an updraft that lifts the clouds of water vapor as they form. Therefore, the algae are responsible for cloud formation.

The algae create clouds for their own dispersal, the third priority for an organism after survival and reproduction and they produce an antifreeze gas to protect themselves from the very low temperatures and a red colouring for protection against ultraviolet radiation encountered at high elevations. Along with the algae vast numbers of bacteria and fungi also disperse into the atmosphere and these organisms then create rain as a method of getting them all back to earth. They grow ice crystals around their bodies by exuding certain chemicals when the air is below freezing but still contains water and this seeding of clouds with ice crystals that eventually fall as rain supports all terrestrial life.

However, the microbes are not just responsible for rainfall, they have also created a self-regulating global thermostat. Warmer conditions increase algal activity and DMS output, creating and seeding more clouds which block out the sun. Then, as the climate cools, algal activity and DMS output decreases cloud cover and the climate warms again.

The algae are not doing this for the good of humans or any other organism but for their own survival, reproduction and dispersal. If they were not making clouds and rain the oceans would get too hot, the warm upper layers would become separated from the colder layers beneath and the nutrients that the microbes depend on that well up from the ocean bottom would not reach them. The algae are also dependant on the nitrogen that lightning bolts cleave from the atmosphere and need the rain that brings it down to them.

What is good for the algae is good for the living Earth and all its constituent life forms. Without all these life forms doing what is good for them, the planet would be a much hotter place. Environmental scientists Peter Liss and Andrew Watson from the University of East Anglia have conducted studies that suggest that algal DMS production cools the Earth by 4 degrees C.

These are just a few of the biological pathways that are always in operation and if these recycling systems are damaged, as is occurring everywhere with the destruction of forest, wetland and shallow marine ecosystems, the consequences to us and all the planet's living body will be catastrophic. We are only just beginning to understand the fact that we exist as part of a mighty living being and that we still have very little knowledge as to how our world operates. Yet we are

changing its living surface so rapidly that we may never comprehend it all before it collapses around us in its death throes.

Human understanding is increasing as never before and the very most important aspect of all our knowledge rests in the fact that at last we are beginning to realize that we and the other animals and plants are not just different kinds of living things but the internal working parts of one great living thing. Every view that we have ever had within the world has been of the internal workings of the body and mind of this remarkable creature. If we could reduce ourselves to microscopic size and wander amongst the workings of a living body, at the bacteriological level, we would probably be struck by the similarities between the two.

Whenever we watch the organisms of this world, mobs of people rushing off to work, flocks of birds in their migratory flights, herds of herbivores crossing the grasslands, carnivores hunting their prey, tall green forests alive with the sights and sounds of innumerable entities, wetlands and their waterfowl, rivers snaking across the countryside, sea shores alive with all manner of life, pods of whales and schools of fish flashing through the ocean, or a line of ants crossing your path, one must always remember that these are the very tissues, organs, blood vessels, arteries, nervous, digestive and reproductive arrangements. Pathways of the planet's conscious, recycling systems in full operation.

The solar system that has provided us with a rocky planet to live upon and a sun to energize us has been built up out of step-by-step, non-random selection, a consequence of the operation of the laws of physics. Just as the waves on a beach will sort the shells and pebbles of different sizes and therefore weights so that they are arranged not at random but in segregated zones along the length of the beach, so the force of gravity will create a variety of planetary sizes and then array them at non random distances from the sun.

These same step-by-step, non-random selection processes will then create a variety of densities of matter upon the planet with the heaviest materials building up the core, the mantle and the crust with the lightest materials, liquids and gases, forming the outer layers.

For the planet to then develop life and consciousness another kind of natural selection must occur, that of cumulative selection. The accumulation of small changes over a long time period is the explanation for all the natural living wonders that surround us and also, of course, for ourselves. The recycling body and mind of the living planet has been built up out of replicating, organic molecules of DNA by cumulative selection over billions of years. But how did it all begin?

The Glasgow chemist Graham Cairns-Smith was the first to propose the "inorganic mineral" theory which states that the original replicators were crystals of inorganic materials such as those found in clays and muds. Crystals replicate their structure with the constituent atoms or ions always attaching themselves to form orderly arrays; layer upon layer of geometric repetition.

So, the precursors of replicating organic molecules may have been the primeval clays, the matter of the planet itself, for ordinary clay contains two basic properties that are essential for life. These are the capacities to store and transfer energy. An examination of ceramic clay shows that as the clay crystals form, faults and mistakes commonly occur and these are repeated until faulty and unstable molecular associations trap energy and holds it for thousands of years.

These defects in the clay microstructure act as sites for storing molecular information necessary to direct the chemical reactions that eventually occur during radioactive decay. These become chemical factories processing raw materials into more complex molecules essential for the organization of proto-organisms. We know that before living organisms began to form on our planet's surface there was only one state of matter that could replicate and organise itself, and that

was the crystal. Crystalline substances prove that universal matter has the ability to organise itself, for they arise spontaneously and replicate themselves in a stable manner to create regular geometric forms. Clays are the most abundant and changeable of these structures. Van Olphen, in an introduction to clay colloid chemistry has this to say about them:

‘Clays are extraordinary, layered crystal structures which have, built into them, what amounts almost to an innate tendency to evolve.’ As the silica molecules of clay form from the Earth's dusty surface they absorb other molecules, including atoms such as aluminium, that possess a negative charge which builds up a potential, under their electrical persuasion, that can bring about major morphological changes and produce regular and predictable folds in their structure. Because a developing crystal pattern will automatically duplicate any innovation, clays then have the ability to acquire and inherit new characteristics.

Life scientist Dr. Lyall Watson, having researched into the remarkable qualities of clay, believes that these crystalline structures were essential in the evolution of life on this planet. He states: ‘Crystals don't reproduce, they replicate. They produce exact copies of themselves carrying on whatever information they happen to have picked up. They are stable, they replicate with accuracy; but if any change is wrought in them by an environmental pressure, they copy this imperfection as well, incorporating it faithfully into their memories. Information in a bed of clay is carried by individual crystals and by the congregation as a whole, and it is held in much the same way as music is carried in the grooves of a gramophone record... the memory of clay is manifest only in its ability to hold a pattern and to influence its environment when treated in a certain way. But this ability and pattern are vital.’

The American chemist Armin Weiss has proven that mica clays have the ability to build up patterns of organic molecules between their silicate layers and he has identified over eight thousand derivatives in which the clays, acting as templates, have induced ammonium ions and alcohols to solidify into organic components.

A. G. Cairns-Smith, in his paper entitled *Synthetic Life for Industry*, points out that: ‘Reactions occurring in such an array containing suitable monomers could give rise to polymers with a genetically controlled configuration, out of which secondary control structures, membranes and other cell structure could be formed.’

Dr. Watson contributes further information on this most important realization at to the very stirrings of life on this planet. He states: ‘As more and more of the information in the silicates was transformed in the organic molecules, the clay would cease to control and take on a more passive role as a protective clamp.... Protein, which we tend to regard as the be-all of life may be only a make shift material that was chosen in the first place just because amino acids happened to be around... they may have inherited their most important attribute from ancestral clay.

Life is not in protein, but in the music written on it; in its ability to recognize other molecules and to hold ordinary atoms in an extraordinarily precise way. Which, if the crystal theory is correct, is precisely what clay learned to do, and what it taught to the first complex replicating molecules cradled in the folds of its bed. It begins to look as though the very first organisms in our life system was the earth itself, in whose body developed a virus, a new metabolism drawn from ingredients in the environment, that eventually learned how to live in greater independence of its host. The whole concept of Mother Earth shifts from symbol and myth to a dawning realization that we live not only on a planet but also on a parent.

The appeal of crystals as primitive genes is that they already possess the magic quality of replication and, given this, the gradual development of nucleic acids from simple organic substances under their control becomes a much simpler and more logical construct. And simple solutions tend to be

the right ones, the ones most likely to have been chosen by evolution from the comparatively simple set of conditions that existed on the primitive earth.'

Support for this theory for the very beginnings of a living planet comes from the discovery of the most primitive of all life forms, a minute living crystal called a Prion. These organisms are even more primitive and simple than a virus, are probably indestructible and have recently begun to attack and kill humans. They are the "brain-eating bugs" that cause Creutzfeldt-Jacob Disease in humans and spongiform encephalopathy that causes mad cow disease that threatens the British cattle industry. A leading Queensland geneticist, John Cox, who has worked with cattle as a reproductive biology scientist in the U.K. and studied Prions, describes them as a strand of DNA more like a mineral than a virus:

'When you look at a virus under a microscope it is moving, but prions just sit there and do nothing until they are activated by being introduced into the right environment. They look like a metal or a crystal which grows and then a piece breaks off and is transported to another site. A virus can live only within a cell and once there is no virus growing you have wiped it out. But a prion can live outside a cell. But like viruses they multiply and kill the cells they are in.

It is not in the peripheral nerves of minks and man, but it is in the peripheral nerves of the goat, sheep and mice. Basically, the spleens, gut, liver, kidneys, lungs and bone marrow have it. So in Britain, they have thousands and thousands of tonnes of cow's offal which they don't know what to do with. If it is buried there is a danger the prion could filter out into something else.' Prions also cause Kuru disease in Papua New Guinean cannibals.

Prions and viruses normally live in harmony with their hosts until they enter a host that has not adapted to their presence. They are not only responsible for diseases but for all else that has ever occurred here. Dr. Watson describes viruses as follows.

'Put a thin overcoat, a jacket of protein, onto a strand of D.N.A. and you have a virus, the simplest almost living thing we can imagine.' The evolution of the virus brought about the further complexity of the bacteria and primitive conscious thought blossomed forth upon the planet. For although bacteria are headless, brainless, heartless creatures containing one primitive cell with one D.N.A. molecule for a chromosome, bacteriologists, biochemists and other scientists have found that they exhibit not only the ability to process data, to memorize, to think, and to make judgments, but to also acquire individual quirks of personality that are picked up by chance.

It all happens because the bacteria have about thirty kinds of protein chemical receptors for sensory perception, and about a dozen proteins that function as data processes which lie on, or beneath, the cell's membrane and acts as the thinking parts of the bacteria's molecular brain. The bacteria will tumble randomly through its environment until it begins to pick up molecules of some food source. The attractant matter is brought into the body and attached to a specific receptor, which fastens itself onto a data processor.

This signals two oppositely acting enzymes in the cell membrane which chemically change the proteins near the base of their rotating hair-like flagella. The enzymes either add or remove a small chemical unit called a methyl group and when it is added a stream of naked hydrogen protons are released the energy of which operates the flagella.

The second enzyme removes the methyl group that the first added but because this takes a little more time, there occurs a time lag, a temporary recollection of the microbes recent past, a microscopic chemical memory of a phase lag, which is a recollection of a recently sensed concentration of a food source. As it continues with this process it is able to detect the concentration gradient of the stimuli it is interested in, it detects the increasing strength of the food

source. The bacterium then shifts from random tumbling to smooth swimming towards the stimuli and so a microbe has solved a complex problem with a tiny chemical time lag used as a memory, the simplest there is. Once bacteria were able to memorize the stimuli coming in from the environment and were then able to hunt their food supplies down, the stage was set for further chemical evolution.

The bacterium began to adapt to environments and food sources and began to specialize; to compete, at first, but then to co-operate for greater success. They came together as symbiotic communities, to work together to overcome increasingly difficult problems. Over millions of years they developed into more complicated cells. Simple life forms like protozoa, algae, and fungi dominated the world.

The first photosynthesizing bacterium was not the ancestors of plants but the ancestors of *Halobacterium halobium* that lives only in salt lakes where the concentration of salt may be as high as 20 %. This living fossil only survives to the present day because it has been able to adapt to an environment in which nothing else can live. If the salt concentration falls to a level at which other organisms can grow, *Halobacterium* dies.

Halobacterium and its ancestors were the first organisms to develop the ability to trap sunlight and turn it into chemical energy. But it cannot take carbon dioxide and water and convert them to sugars by photosynthesis which plants can do and so power the world's ecosystems. Instead, the bacterium uses light energy to swim, to absorb nutrients and for the making of adenosine triphosphate (ATP) which makes energy for other metabolic reactions and this gave *Halobacterium* an advantage over earlier forms of life.

Halobacterium has no chlorophyll and its photosynthesizing is very primitive using a purple, light-sensing pigment like that which exists in the eyes of animals. It is purple because it is very efficient, it completely absorbs the higher energy green light in the middle of the visible spectrum and reflects the lower energy red and blue (purple) light at the ends of the spectrum that it does not need. So successful was *Halobacterium* that it dominated the seas which glowed purple from its success.

However its success eventually destroyed it because it could not fix carbon dioxide, a great deal of which was generated as a waste product and as it consumed its primeval broth of complex organic materials, that had accumulated in the seas over millions of years, there was a steady loss of carbon and life on earth was faced with extinction. The living planet was saved by another bacterium that lived deep underwater and fed on the decaying organic matter that rained down from above. It too developed the ability to trap sunlight but because most of that energy was being taken by the purple bacteria swimming above them, they evolved a photosynthetic pigment that could absorb the weaker wavelengths at the edges of the spectrum and so reflected the higher energy green light.

As the biosphere ran out of organic compounds, the ability to fix carbon dioxide became essential, the purple bacteria starved to death while the green bacteria bloomed into the plant kingdom that now powers the planet. The green bacteria, algae, developed pairs of light powered electron pumps that could remove hydrogen electrons from the water molecules that were given to carbon dioxide and oxygen was freed to fill the atmosphere and allowed the evolution of the animal kingdom. However, plants have remained relatively inefficient in their absorption of sunlight and still absorb the wavelengths at the edge of the spectrum, reflecting the higher energy green light.

Therefore, our beautiful green world came about because of the competition for light between those early photosynthesizing bacteria. Because the land plants and surface-living algae have an abundant availability of sunlight, they can remain less efficient in their photosynthesizing, whereas the deepwater seaweeds have developed extra pigments to make the most of the light that filters down through the murky water and these plants are brown and reddish in colour because they absorb the

green light. Exactly the reverse of what was happening early in the planet's history.

However, if plants ever needed to increase their photosynthesizing efficiency, they would become brown or even black-leaved and the entire colour of the planet would change again. Perhaps living black planets exist in orbits further from their sun in other solar systems.

When the plants were first beginning their evolution and developed the ability to use sunlight, the other surviving bacteria feeding on decaying organic material were the fungi. It was a type of fungi, a Choanoflagellate, that existed 1000 million years ago that would eventually dominate the world and create advanced consciousness, for it was the ancestor of all the animals. The wonderful animals that swim, fly, walk, talk, think and pray, across the surface of the planet, are just highly evolved and clever fungi.

Not very long ago the most conscious part of the planet's mind, humanity, believed that everything was finite and static, that there was no such thing as change. It was believed that everything remained pretty much as it was, had been that way since it came into existence, and would remain that way until everything ceased to exist.

It was believed that the land and its environment, the mountains, plains, rivers, lakes and oceans, along with their plant and animal communities were static and did not change. With this basis for understanding it was believed that for reality to exist in its present form, it had to be created.

Before this present age of written language and print humanity had no way of communicating across time, other than to retell the more important events, and the names of those responsible. People had only a single lifetime in which to observe reality, and that was not enough for the major changes taking place.

After keeping records for one or two hundred years, we are only now beginning to see changes and recognize cycles taking place across the planet. But to really try to observe the changes taking place everywhere we have to look closely at our environment. Here we find evidence of change.

A close examination of a mountain top may show that it is composed of ancient sea shells, corals, and other oceanic life forms. These are embedded in sedimentary materials of solidified sand and mud that could have only been formed at the bottom of the sea. The sea bed itself has been pushed up into a mountain.

Other mountains are formed from a very hard, dense material that comes out of the ground during volcanic eruptions. This is released in a molten state, and then solidifies as it cools down. We notice in the case of the volcano that the softer, less dense material, ash, pumice, tuff etc. thrown violently out and thus mixed with air, erodes quickly compared to the hard rock that formed from the denser lava that remained in the volcano, or that was pushed slowly out. In very old extinct volcanoes, we can see that all has been eroded except for the volcanic plug of lava that solidified in the throat of the volcano, and so now stands as an igneous mountain of rock.

We notice in the case of the sedimentary rock mountain that was pushed out of the sea, often to enormous heights, that it also erodes quickly. The friction of the wind and water, plants and animals, breaks the sides of the mountain into smaller and smaller particles, to be washed down streams and rivers and back to the sea. If we dig into the ground we find layer upon layer of consecutive landscapes, each buried by what came after. It is not too difficult to determine roughly how long it took for each layer of sedimentary rock to be laid down, or what the landscape was like at the time of burial, for it is all there in the ground.

The remains of animals and plants that lived in that landscape are also evident, and by digging down, or finding portions that have been revealed by erosion, we begin to see a very clear history of the world, and of the changes that have taken place throughout its existence. We can see a progression, as we go deeper into the earth's preserved history, of the way animals and plants have been changing and adapting to a changing environment.

We can see how the living Earth began to organize itself into more and more complex levels of organization. From ancient crystals and single strands of DNA came viruses, bacteria, algae, simple animals and plants, and finally remarkably complex organisms such as us. All the living beings that we interrelate with and depend on, that make up the living environment of this planet. Being able to record, and then communicate, these changes to more and more of the conscious planetary mind,

we are finally able to understand that we live not in a static environment designed on purpose, but in a constantly changing, growing environment built up by endless chance occurrences.

This knowledge will be of little use to us if we do not acquire the wisdom with which to use it. Our technology will not be able to save us from ourselves, because most of it is being used for other purposes, rather than to find ways to protect us from our own horrendous mistakes.

There is only one way in which we can now survive along with everything else that we hold dear, and that is to understand the reality of our situation. We must realize that we are one living planet, and that the earth is not here for our benefit, but in fact that we are here for the benefit of the planet. Humanity can continue to be the conscious mind of the planet, or as it is now rapidly becoming, a disease of the planet, consuming its very living body and then dying off along with the host.

If we continue to use the planet for our own selfish gain, we are a disease, a human cancer on the surface of a living world. If instead we work for the benefit of the planet and all its living manifestations, we are indeed a genuine part of its planetary consciousness. In all our thoughts and actions, the Earth must come first. For we, and everything else, are the Earth. If we are to thrive and prosper as a successful species and still hold our heads high as we proclaim our humanity and be successful in all our personal endeavors, we must always think..."Earth First!"

It is the greatest tragedy that much of humanity fights and kills for a belief that one's nation or religion is somehow better than others. In reality, anything that exists as part of the living surface of this planet is perfectly equal to any other part, no matter what it is, for it is all part of the whole and it is the health and sanity of the whole planet that has any importance, not the supposed rightness or wrongness of any of its parts.

Investigation into the spiritual side of reality and its coupling with the physical side is healthy and necessary for people. But what is the spiritual side? It is now known that the universe is composed entirely of vibrations termed radiation. This radiation exists in a range of frequencies and so we can regard the universe as a frequency domain.

Nuclear physicists have been splitting the atom for many years and have discovered that when the particles of an atom are split further, into the most minute of fragments, solid matter is actually made up out of tiny particles of congealed energy, or circular motion in which the radiations spin around a fixed point. Concentrations of lower energetic vibrations give us the appearance of solid matter.

Any kind of a chemical reaction from that of suns to the metabolism of most minute organisms causes matter to increase its vibration frequency producing what we refer to as energy, or straight-line motion/radiation. Radiation, motion, energy, the vibrations that are the building blocks of the universe, can not be destroyed.

If the frequency is changed it results in energy acting in a way, relative to those vibrations. An electro-magnetic spectrum develops from chemical reactions, that in turn speed up the vibrations of the matter involved, as occurs continuously in the Sun. Extremely high vibration frequencies produce cosmic rays, photons of sunlight, gamma rays, X rays, ultra violet rays, visible light rays and infra red rays. Below these vibrations we get micro waves, radar, UHF, VHF, and FM frequencies, followed by short wave and AM radio waves and finally low wave radio frequencies.

These dense showers of energy radiating from the sun, consisting of uncountable numbers of sub atomic particles, which only eight minutes ago were part of the sun itself, continuously collide with our planet. We are aware of this process when we stand outside and feel this radiation striking our skin and warming our bodies.

Of all these energetic particles striking the Earth, the only ones that we can readily observe are those that vibrate at the visible light frequency. We can only see these because the cells and bacteria that make up our eyes, have adapted themselves to take advantage of this most useful frequency so that they and we are better able to survive. You can read this page as a result of photons of light striking your window. They don't actually pass through the window, but when these minute sub atomic particles strike an object they attach themselves to its molecular structure.

This radiation traveling at the speed of light hits your window with such an impact that it knocks another sub atomic particle out of your window. The photon traveling at the speed of light strikes this page, which in turn bounces another photon out of the paper. This impacts with your eye which the brain then notes and adds one more dot of information to its visualized picture.

There is no doubt that we are a part of a very energetic universe. These vibrations can be described on a scale, like musical notes ranging from highest down to the lowest energetic vibrations. The higher frequencies consist of the cosmic radiation and the lowest conform to the densest matter such as metals. It is most interesting to note that living organisms can exist only at the centre of this scale, where the energies harmonize, and organization and construction can begin.

All solid matter is made up out of vibrating atoms with electro positive centers and electro negative electrons whizzing around them, and these are constructed of the minutest energetic particles. We are not simply solid material being living on the solid surface of a planet but are energetic beings on an energetic planet in an energetic universe.

Because of our planet's relatively small size these forces are unable to build up to become an activating, radiant energy producing object, like a sun. The thin outer surface has cooled and hardened to become the solid ground beneath our feet.

The swirling magmas below constantly melt the Earth's crust, which causes the continents and ocean-floors to shift and collide. The crust cracks and dissolves when the seabed is forced under the heavier continents. Earthquakes and volcanoes occur, and the magmas are forced to the surface where they cool and are added to the planet's crust. The energy that everything is composed of is changed from one form to another, but it cannot be destroyed.

Our bodies are composed of the lower frequency vibrations called matter. We metabolize planetary matter by chemical reaction in our bodies which produces higher energy vibrations. It is these higher energy vibrations that makes life possible, operates the functions of the cells so that we can live, reproduce and think.

As the environment is in a constant state of change the life forms within it must reproduce copies of themselves using random shuffling of genes, so that from an array of new individuals some will be born with characteristics suitable for the newly changed environment. Without this constant evolution of new species, life and consciousness could never develop and survive. It is essential then for the old or weaker individuals to eventually succumb to make way for the latest, stronger or more adapted individuals. The planet is a closed recycling organism in which nothing can afford to be wasted. So, the physical body, once dead, is rapidly decomposed and reabsorbed by the planet's nutrient cycles back into the planet's body.

The ancient liturgy, dust to dust, ashes to ashes, explains most simply the continuous nutrient recycling process of which our bodies are a part, and it has always been believed that the energetic body or soul, survived physical death. Recent scientific investigation is showing that these beliefs may be based on fact.

Kenneth Ring, P.H.D. has recently undertaken a scientific investigation of the "near death experience" and has published a book on the subject entitled *Life at Death*. He has examined the growing body of information about the nature of death and has interviewed large numbers of people who have experienced clinical death and have recovered to tell what it was like.

Although these people didn't actually pass away, they were indeed clinically dead; their experiences are very similar. His work confirmed the findings of other researchers such as Raymond Moody and discovered that the near-death experience was not affected by the individual's age, sex, education, race, or religion. His findings and those of other researchers show that patients who died either perceived an immediate separation of a spirit-like entity from their body which then became aware of its former body lying in bed or who felt like a disembodied consciousness floating above their body.

A physician, R. B. Hout, describing the death of his aunt, wrote, 'My attention was called to something immediately above the physical body, suspended in the atmosphere about two feet above the bed. A vague outline of hazy fog-like substance... very gradually there grew into my sight a denser, more solid condensation of this inexplicable vapor... soon I saw this fog-like substance was assuming a human form... resembled the physical body of my aunt... the astral body hung suspended horizontally a few feet above the physical counterpart the spirit body now seemed complete to my sight.

I saw the features plainly. They were very similar to the physical face except that a glow of peace and vigor was expressed instead of age and pain. The eyes were closed as though in tranquil sleep and a luminosity seemed to radiate from the spiritual body... my attention was called to a silver-like substance that was streaming from the head of the physical body to the head of the spirit body.

The cord was attached to each of the bodies at the occipital protuberance immediately at the base of the skull. Just where it met the physical body it spread out, fan-like and numerous little strands separated and attached separately to the skull base. But other than at the attachments, the cord was round, being perhaps an inch in diameter. The colour was a translucent luminous silver radiance.

The cord seemed alive with radiant energy. I could see the pulsations of light stream along the course of it, from the direction of the physical body to the spirit double. With each pulsation, the spirit body became more alive and denser, whereas the physical body became quieter and more nearly lifeless... By this time the features were very distinct. The life was all in the astral body... the pulsations of the cord stopped... I looked at the various strands of the cord as they spread out, fan-like, at the base of the skull. Each strand snapped... the final severance was at hand. A twin process of death and life was about to ensure... the last connecting strand of the silver cord snapped and the spirit body was free.

The spirit body, which had been supine before, now rose. The closed eye opened and a smile broke from the radiant features. She gave a smile of farewell then vanished from my sight. The above phenomenon was witnessed by me as an entirely objective reality. The spirit forms I saw with the aid of my physical eye.'

Another medical doctor to write on this remarkable phenomenon was A.S. Wiltse who nearly died of typhoid fever and wrote: 'Feeling a sense of drowsiness come over me, I straightened my stiffened legs, got my arms over my breast and soon sank into utter unconsciousness. I passed about four hours in all without pulse or perceptible heart beat as I am informed by Dr. S.H. Raynes who was the only physician present. (During this time) I came again into a state of conscious existence and discovered that I was still in my body, but the body and I had no longer any interest in common.

With all the interest of a physician I beheld the wonders of my bodily anatomy, intimately

interwoven with which, even tissue for tissue, was I, the living soul of a dead body. By some power, apparently not my own, the ego was rocked to and fro, laterally, as a cradle is rocked, by which process its connection with the tissues of the body was broken up. I felt and heard, it seemed, the snapping of innumerable small cords.

When this was accomplished, I began slowly to retreat from the feet, towards the head... As I emerged from the head I floated up and down and laterally like a soap bubble attached to the bowl of a pipe until at last I broke loose from the body and fell lightly to the floor where I slowly expanded into the full stature of a man. I seemed to be translucent, of a bluish cast and perfectly naked.

...As I turned, my left elbow came in contact with the arm of one of two gentlemen, who were standing at the door. To my surprise his arm passed through mine without apparent resistance, the severed parts closing again without pain, as air re-unites. I looked quickly up at his face to see if he had noticed the contact, but he gave no sign - only stood and gazed towards the couch I had just left. I directed my gaze in the direction of his and saw my own dead body. I was lying just as I had taken so much pains to place it...

Without previous thought and without apparent effort on my part, my eyes opened. Realizing that I was in the body, in astonishment and disappointment I exclaimed "What in the world has happened to me? Must I die again?"

These two accounts, given by Dr. Ring, parallel one another, from both the external and internal perspective. He then goes on to quote from a book called *The Transition Called Death* by Charles Hampton, who was both a priest and a clairvoyant.

‘As the rest of the body becomes negative and dead, the heart and brain become more alive because all of the forces of the body are now concentrated in the upper part of it. When a dying person says, "everything is becoming clear, my mind is more lucid than it has every been," we may know that the transition is taking place... all this time the silver cord also becomes more alive, etheric matter flows over it like a rapidly moving fluorescent light, but imperceptibly extracting the life force more and more, somewhat as a suction. Where the silver cord joins the main nerve ganglia it consists of thousands of very fine threads. As the life force flows back into the high world, those threads begin to break.

During earth life the etheric double is coterminous with the nervous system as well as enveloping it. In outline, in form and feature, it is a replica or double of the physical body, in matter finer and more tenuous than the finest gaseous substance, yet it is still physical matter. The etheric double disintegrates or de-materializes once it is abandoned.

It was never intended to be a vehicle of consciousness. Its function was to convey vitality to the body through the nervous system.... its appearance is that of a bluish-white mist... Death means that the etheric double is disunited from the nervous system, but the double is no more to be preserved than the physical is, it is part of the physical and will disintegrate. Immediately on awakening in the astral world the etheric matter fades out like mist.

Dr. Ring goes on to state that ‘there is abundant empirical evidence pointing to the reality of out-of-body experiences, that such experiences conform to the descriptions given by our near-death experiencers, and that there is highly suggestive evidence that death involves the separation of a second body - a double - from the physical body.’ How then do we, at death, awaken in the astral world, of what is it composed and where does it exist?

From the large number of accounts, compiled by researchers, of people who have experienced this

near-death phenomenon, it appears that after the surviving consciousness leaves the physical world it undergoes a shift in levels of consciousness and becomes aware of a new dimension. While alive we function in the three-dimensional world of ordinary sensory reality examining our world from a body-based consciousness but once we die and set our consciousness free it interrelates and becomes aware of the higher vibration frequencies of a dimension of enhanced sight, sound, and serenity.

The individual experiences this transformation from one vibration level to another as a traveling through a void or dark tunnel until the transformation is complete and then one is encompassed by a world of brilliant golden light of great beauty and splendor. It is here that one is reunited with the spirits of deceased relatives and loved ones, experiences a complete and detailed but instantaneous, panoramic life review and it is further reported that one feels as if in the presence of a great entity.

It all sounds too good to be true and the description resembles closely the classical beliefs of going to paradise or heaven after one has passed away. However virtually all those who have come very, very close to death and have remembered their experience describe their journey through the void and the entrance into a world of light as being a very clear and lucid reality quite unlike a dream or illusion. Upon recovering from their ordeal, they invariably regard it as a beautiful experience, become more caring and loving in their ways and lose any further fear of death.

So, what could be the explanation for the reported experiences? Karl Pribram, a well-known neurosurgeon, has recently produced a possible, fascinating answer to many of the questions regarding paranormal and mystical phenomena which he has entitled "Holographic Theory". Having its origins in both the neurosciences and physics he proposes that our brains function holographically by mathematically analyzing interference wave patterns so that images of objects are seen.

Holography is a method of photography, in which, instead of having the light rays focused through a lens they are scattered off the object and picked up on a photographic plate as a jumbled pattern of swirls called an interference pattern. It is somewhat similar, though three dimensional in operation, to a calm pond with a small island in the middle being disturbed by several small stones thrown at once around the edges.

The ripples caused will converge and bounce off the small island and if any part of the jumbled pattern of ripples on the pond is frozen in time, as light is on a photographic plate, that interference pattern contains a complete image of the island at the water edge. On the photographic plate, to obtain the hologram one must illuminate the jumbled swirls with a coherent source of light such as a laser beam and a three-dimensional image will result.

The holographic theory thus states that our brains analyze the interference wave patterns of sunlight that are being scattered off the objects around us and into our eyes. Since reality is primarily composed of vibration frequencies, lower frequencies form matter and higher produce energy, these different frequencies are recognized by different cells of the brain, which together form a frequency analyzer. The complex patterns are broken down into their components and then projected in the mind as a perfect three-dimensional hologram which we then accept as our view of the environment around us.

We can never really see anything outside of our bodies. Even if we used sonar as bats and cetations do, bouncing sound off the objects around them and recording the interference wave pattern echoes, because whether it is sight or sound or any other frequency the brain has to first collect and analyze the information and then construct a holographic image in our mind of the environment around us.

We then examine the hologram in our minds instead and interpret it for the actual scenery. We can

only see a very small range of the vibration frequencies, or electro-magnetic spectrum, which we call visible light and which we convert, inside the mind, into our familiar object world. This is a very practical method that works superbly as vision.

However, we are unable to observe all the other frequencies such as the higher cosmic, gamma, X-rays or ultra violet light. Nor can we observe the lower infra red, micro waves, radar or radio waves. This is probably a very good thing for it may become very confusing if we were able to pick up all these frequencies especially if they were of little use to our survival. However, all of these frequencies, and any others that we may not yet be aware of, make up primary reality which Karl Pribram calls the frequency domain.

Of this realm, Pribram has said, 'The frequency domain deals with density of occurrences only, time and space are collapsed. Ordinary boundaries of space and time, such as locations of any sort, disappear.... in a sense, everything is happening all at once, synchronously. But one can read out what is happening into a variety of co-ordinates of which time and space are the most helpful in bringing us into the ordinary domain of appearances.'

He goes on to say, 'As a way of looking at consciousness, holographic theory is much closer to mystical and Eastern philosophy. It will take a while for people to become comfortable with an order of reality other than the world of appearances. But it seems to me that some of the mystical experiences people have described for millennia begin to make some scientific sense. They bespeak the possibility of tapping into that order of reality that is behind the world of appearances.... spiritual insights fit the description of this domain. They are made perfectly plausible by the invention of the hologram.'

There is a realm of golden light, spoken of in many traditions as the place most humans go to after their death, which may now be understood, in the context of the holographic theory, as a higher level of the vibration frequency domain that is primary reality. At this frequency level, above that of the slower vibrations of solid matter, the conscious mind, if it does in fact survive bodily death, would perceive its environment, not via its normal sensory systems, but by directly interrelating with the vibration frequencies encountered and interpreting them holographically in object terms.

Because our minds are always interrelating with the environment, we presently perceive reality as it exists on the physical surface of our planet. If the mind works through the brain (as scientists Sir John Eccles and Wilder Penfield believe) and is not just reducible to brain function, and if it is functioning holographically to give us our picture of physical reality, it must also function holographically if it survives brain death.

It would project upon that astral realm the thoughts and images it carried with it. This proposed higher frequency domain would then be organized and structured by the living planet's thinking consciousness. This would consist, primarily, of the surviving minds of deceased humans along with all the surviving consciousnesses of all organisms that together form the living planet. The astral realm would then consist entirely of thought-organized higher frequency vibrations.

Dr. Kenneth Ring believes that the astral realm '... is created by interacting thought structures that combine to form patterns, just as interference waves form patterns on a holographic plate. And just as the holographic image appears to be fully real when illuminated by a laser beam, so the image produced by interacting thought forms appear to be real, with the mind itself acting as the laser beam to illuminate the frequencies. Because the minds come from a physical environment, they would create an enhanced paradisiacal representation of their former homeland. Thus, those who have experienced an at-death journey to the astral realm and then returned, invariably describe an Earth-like environment.'

Dr Ring continues to state 'However, since this is a realm that is also (presumably) composed of minds that are more clearly attuned or accustomed to this higher frequency domain, those minds can shape the impressions of the "newly arrived". The holographic result, an interaction of these thought patterns, thus tends to create a "higher gloss" to the perceived forms of this realm, that is, they are experienced in an enhanced way. One is tempted to say that what is seen is, at least at first, largely determined by pre-existing schemata of near-death survivors but how (finely or beautifully) it appears is influenced primarily by minds used to that frequency domain.

The gist of this speculative holographic interpretation then is that "the world of light" is indeed a mind created world fashioned of interacting (or interfering) thought patterns. Nevertheless, that world is fully as real-seeming as is our physical world. Presumably, and this is an admitted and obvious extrapolation, as one becomes increasingly accustomed to this holographic domain and to know "how it works" the correspondences between the physical world and this realm grow increasingly tenuous. Eventually one would suppose that an individual consciousness would become anchored in the multi-dimensional reality of the holographic domain and the familiar structures of our world would be radically changed there in ways we can only surmise.'

Concerning the experiences that near-death survivors have with the spirits of dead loved ones Dr. Ring believes that the holographic interpretation can be used to account for the perception of spirit forms. 'Just as object-forms are, theoretically, from a holographic point of view, a function of interacting mind patterns, so, too, are encounters with "persons" in "spirit bodies". Such "entities" are then, the product of interacting minds attuned to a holographic domain in which thought alone fashions reality.

The fact that communication between near death survivors and the "spirit form" is usually said to be telepathic in nature again points to a world of existence where thought is king. From this angle, one can easily see that the manifestations in this high order of reality could easily transcend the forms of our sensory world. As individuals whose consciousnesses are rooted in the natural world, we can only speculate on the levels of mind that may be able to influence perceptions in (that) frequency domain.'

Although the majority of near-death survivors describe their entrance into a world of incomparable delight with visions of grassy fields and country lanes, colourful flowers, beautiful valleys and lakes, all peopled with relatives and friends, some very unfortunates have described hellish experiences. The "realm of bewildered spirits", as Moody describes it from the interviews of near-death survivors seems to exist at a lower frequency domain than that of the paradisiacal realm. It is occasionally encountered as the experiencers make their journey through the black tunnel or void on their way to the world of light.

Dr. Ring states 'In my view, what is happening in these cases is that the individual is "passing through" a lower frequency domain (although he may occasionally, temporarily, "get stuck" there). This domain is also a holographic reality and is organized in precisely the same way as the paradisiacal realm we have already considered. The principle difference is in the nature of the minds that are interacting to create this reality.'

Because the living planet is a single entity all living organisms including humans are a part of that unity. Although we all have a physical body, we know that our individual life times are primarily made up of a string of thoughts, our stream of consciousness, that is of utmost importance to us. For most of us the thoughts of our body dying is of less importance than the ending of our consciousness which we value so highly, and which makes us human.

It is our thoughts that have created our global civilization, that have created our planet-wide mind. From our planet's perspective the lifetime of every organism, particularly every human organism, is

a single thought. Compared to the billions of years in the life time of a living planet the lifetimes of the thinking organisms out of which it is constructed are only fleeting. Like the countless thoughts that flash through our individual consciousnesses, all made possible by the cells that we are constructed out of.

Therefore, all minds and all consciousnesses are identical. All want the same thing, happiness and contentment, to be successful at what they are doing and to enjoy the experience of physical, living consciousness. All life forms then are extensions of oneself.

If one is helpful and caring towards others, human or otherwise, one is being helpful and caring for oneself. However, if anyone acts as if they alone are of value and therefore seek to injure or destroy other life forms, particularly humans and all other highly evolved animals, one is physically and spiritually destroying oneself.

One's lifetime can be a good thought or a bad thought in the consciousness of the planet's mind. Imagine the confusion and horror then of the surviving mind of such an individual who at death is reunited with the minds of all those he has successfully physically tortured and destroyed.

There is one other very important phenomenon reported by most persons who have died, been resuscitated or otherwise began to show signs of life and who have remembered, vividly, the experience of their conscious mind's journey into a realm of golden light. That phenomenon is the encounter with a great presence or a voice or a being of light. Sometimes this presence is identified with God or as a guardian angel, while others neither recognizes the voice nor identifies it in any way. This presence or voice that has communicated with the near-death survivors radiated only love, comfort and acceptance and there was never any sense of being judged by the presence.

If the onset of the near-death crisis came unexpectedly or suddenly as in an accident such as a fall, a drowning or automobile crash or sudden illness such as cardiac arrest, the encounter with the presence in the world of golden light often initiates a panoramic life review in which the person's whole life flashes before their eyes in great vividness and clarity and yet takes only a moment to complete. Dr. Ring believes that the presence or voice is not a guardian angel but is in fact one's higher self that one is being reunited with.

‘In this view, the individual personality is but a split off fragment of the total self with which it is reunited at the point of death. During ordinary life, the individual personality functions in a seemingly autonomous way, as though it were a separate entity. In fact, however, it is invisibly tied to the larger self structure of which it is a part. This higher self is so awesome, so overwhelming so loving and unconditionally accepting (like an all-forgiving mother), and so foreign to one's individualized consciousness that one perceives it as separate from oneself, as unmistakably other. It manifests itself as a brilliant golden light, but it is oneself, in a higher form, that one is seeing. The golden light is a reflection of one's own inherent divine nature and symbolizes the higher self. The light one sees then is one's own.’

This all-knowing higher self has total knowledge of one's past and future, can initiate a life review and can also provide a preview of one's future life. Dr. Ring continues ‘At this level, information is stored holographically, simultaneously or nearly so. In fact, the life review is a holographic phenomena par excellence.’

If we remember Pribram's words when describing his holographic theory; ‘Everything is happening all at once, synchronously’, then one can see how the theory seems to fit with the evidence provided by near-death survivors. Dr. Ring continues ‘.... readers familiar with various spiritual traditions will know that the point of many spiritual disciplines, such as meditation and prayer, is precisely to cultivate an awareness of one's higher self in order to align one's individual personality with it. It is

believed that in this way one can live more fully in accordance with the total being of which one's personality is but an expression.

In this light, one may argue that the onset of apparent death may trigger this kind of awareness directly or involuntarily. It is interesting to observe that such experiences tend to bring about "a spiritualization of consciousness" in some near-death survivors, similar to that expressed in the lives of those already consciously following some kind of spiritual path. Thus, one may speculate that the near-death experience may represent, at least for some, a sudden means of awakening to a higher spiritual reality.'

A scientist who has experienced the near-death phenomena, John Lilly, best known for his research with dolphins, has related the following in his book *The Centre of the Cyclone*.

'They say they are my guardians, that they have been with me before at critical times and that in fact they are with me always, but I am not usually in a state to perceive them. I am in a state to perceive them when I am close to the death of my body.'

When first he meets with the presence during his near death he states:

'Their magnificent deep powerful love overwhelms me to a certain extent, but I finally accept it. As they move closer, I find less and less of me and more and more of them in my being. They stop at a critical distance and say to me that at this time I have developed only to the point where I can stand their presence at this distance. If they came any closer, they would overwhelm me, and I would lose myself as a cognitive entity, merging with them.'

They further say that I separated them into two because that is my way of perceiving them, but that they are one in the space in which I find myself. They say that I insist on still being an individual, forcing a projection onto them, as if they were two. They further communicate to me that if I go back to my body as I developed further, I eventually would perceive the oneness of them and of me and of many others.'

These narrations of near-death experiences were, until recently, probably the only evidence that we possessed that point to the possibility of another side of reality co-existing with the physical universe that we know so well, dwell in and can examine. All of it is, of course, dependant upon what others have stated and it is difficult or impossible to examine directly if one hasn't had a near-death experience or other similar spiritual/astral happening. However logical and scientific examinations can and have been made of these narrations and from them vital clues can be ascertained.

The famous psychiatrist, Carl Jung, noted for his explorations of the subconscious mind, survived a near-death experience himself when he was about seventy and described it in his autobiographical work '*Memories, Dreams, Reflections*' in which he wrote,

'I can describe the experience only as the ecstasy of a non-temporal state in which present, past and future are one. Everything that happens in time had been brought together into a concrete whole. Nothing was distributed over time; nothing could be measured by temporal concepts. One is interwoven into an indescribable whole yet observes it with complete objectivity.'

Note that once again the description brought back from the astral realm is one of ecstasy, timelessness and that "one is interwoven into an indescribable whole" which is as it must be if the mind survives the body's death. Once freed from the body one could not experience pain which is an adaptation to alert us to the fact that something is having a negative impact on the body.

It is the "indescribable whole" that is of great importance to examine. Dr. Ring believes that it is one's higher self that one meets at the threshold of the "world of light" and that is most likely correct. But it could not just be you and your higher self for as was expressed earlier total individuality is an illusion for, we as single personalities are actually an integral part of the entire living surface of the planet. The higher self that one meets may also be everyone's higher self and every living thing's higher self.

In other words, everyone's higher self is an interwoven continuum of all higher selves. We are all part of the conscious living organism that covers the planet and that operates in the lower frequency vibrations of matter. Therefore, the astral realm or "world of light" may also be a single conscious entity operating in the higher frequency domain.

Furthermore, both frequency domains may also be one, Heaven and Earth existing as part of the whole living planet and perhaps one cannot exist without the other. It may be that physical life operating in the lower frequencies of matter is the mechanism responsible for bringing order and consciousness out of the random, chaotic, unconsciousness of the general universe. The higher frequencies of energy are then controlled by the ordered consciousness of physical, natural life. As life evolves greater and more complex order and consciousness so the higher frequencies of energy are further controlled and become more conscious.

In this view, the living planet and all its conscious organisms, including humanity, is then responsible for the creation of Heaven. It may be that we have created order and consciousness in the astral world of light, as we, the living planet, have created order and consciousness in the world of matter.

Heaven would remain a random and chaotic frequency domain if it were not directly for our own evolving minds. Heaven and Hell is created in our minds and after the body dies the mind is free to holographically organise the higher frequency domain. If this is possible, then we are responsible for the astral realm and must not take that responsibility lightly.

It should not be imagined that Heaven and Hell, the higher frequency domains of the astral realm, exist somewhere else in time and space. Since they are a part of the planet, if they do in fact exist, they must co-exist right here with us. The planet Earth must be enveloped and interwoven with the astral realm, which may not have existed until consciousness began to evolve. But what is this possible planetary energetic or spiritual field that may envelope and be concomitant with the physical planet.

Most biological scientists believe that living things are complex, hierarchically organized, computer-like machines that are chemical systems acting in conformity with the scientifically understood laws of nature. However, a small minority of biologists, calling themselves "Organicists", believe that in fact this mechanical view of reality is only half of the picture and that a "vitalistic principle" is operating along with the principles of physics and chemistry.

Robert Sheldrake, a former director of studies in biochemistry and cell biology at Cambridge University, has produced a highly unorthodox hypothesis, which claims, among other things, that embryos and their brains develop by tuning in to an undiscovered non-material formative force called a morphogenetic field. As a magnetic field can orientate a pile of iron filings into a certain pattern so this mysterious new force can help shape body and mind. He believes that a morphic resonance operates between living organisms and the morphogenetic field which then helps to determine the evolutionary mutations occurring and even the learning of new skills by the organisms.

He states that 'the structure of morphogenetic fields is determined by the actual structures of

previous organisms of the same species. Thus, there is a direct connection between the forms of the organisms over space and time.

This means that a developing embryo, for example, will tune in to the form of previous embryos of the same species. Moreover, something similar occurs with behaviour. Animals tune in to the actual behaviour of previous similar animals. So, there's a sort of pooled species memory in operation.'

He maintains that species remain stable for millions of years because morphogenetic fields grow stronger with repetition. He believes that evolutionary changes occur whenever genetic or environmental shifts produce an embryo so different from its parents that the deviant cannot resonate with the species morphogenetic field and so a new field is generated that is compatible with and helps the deviant's development, and that of its offspring. There is no solid evidence as yet to back up this radical new theory though certain experiments with fruit flies and crystal formation, giving some unexpected and strange results, have been cited as possible evidence for it.

At this stage of our planet's understanding of the reality in which it finds itself, we have gone from a very simplistic belief of a recently god-made flat earth in the centre of the universe with the sun and moon encircling us, to an awareness of an infinite and remarkable universe, of which we are just one of its endless fragments. Fact has been found to be, indeed, much stranger than any conceivable fiction. So complex is reality that whenever we find the answers to any problem or question, it invariably opens up another unexpected field for further logical examination.

While there are reported phenomena that cannot be explained, we can be certain that we have not yet obtained a full view of reality. Theories such as Sheldrake's Morphogenetic Fields help us try to come to grips with those aspects of reality that are not readily visible and it is important that any valid scientific hypothesis is examined, and experiments conducted so as to discover if they do indeed bring forth logical answers.

Morphogenetic Fields theory may be a method of examining and demonstrating the existence of an energetic field that has been created by the evolving living planet of which we are an integral part. Perhaps this is the answer to the very strange questions pertaining to life after death, memories of past lives or reincarnation and other aspects of the world of paranormal phenomena.

There are many other scientists specializing in a whole array of scientific fields who have likewise come to believe that there is more to reality than meets the eye. Sir John Eccles believes that we are more than physical beings. He was the winner of the 1983 Nobel Prize in physiology and medicine, for his pioneering work on the synapse, which is the point at which nerve cells communicate with each other. He believes that humans consist of both physical matter and an intangible spirit that exerts just enough influence on the computer-like brain, to encourage some neurons to fire and others to remain silent and so operate the body and mind.

He states, 'If my uniqueness of self is tied to the genetic uniqueness that built my brain then the odds of my existing in my experienced uniqueness are ten with ten thousand zeros to one.' He refuses to believe that his existence as a self is due to such incredibly long odds. He continues 'I've often said that I could have been born masculine or feminine, with very different mental abilities than I actually possess, yet I still would be the same me.'

However, most scientists disagree with these statements and Tufts University philosopher of science Daniel Dennet, complains that Eccles is completely ignorant of recent developments in computer cognitive science. Of course, everybody looks at reality from their own viewpoint, depending upon their individual specialties of interest.

Computer expert Donald Mackay of the University of Keele in England believes that the conscious

self stands in the same relation to the physical brain as a mathematical equation stands to the physical computer. Just as the non-physical equation in some sense determines the computer's behaviour, the self determines the physical brain's behaviour and therefore both possess free will and may survive its computer brains death.

Caltech neurobiologist Roger Sperry, who won the 1991 Nobel Prize for his delineation of the functions of both hemispheres of the brain, maintains that the self is really a new, or emergent property of matter that appears only in complex, hierarchically organized physical systems like, the human brain. He believes that the brain system somehow controls its parts in ways that supersede the mechanistic physical states of the brain's ten billion neurons.

Dr. Carl Jung hypothesized, that there exists a collective unconsciousness, to which all individual human minds are connected. He believed that the task of each person was to "individuate" in a process of personal growth. One should integrate all the diverse parts of the individual's nature into a harmonious whole called the self.

He saw evidence of this collective unconsciousness in synchronistic events, where two supposable accidental happenings occur at the same time, as the attempts of the unrealized self, in its urge to become conscious, to offer messages to the individual. According to Jung the self can tap the resources of the collective unconscious to bring a desired result. In discussing the possibility of life after death, Jung goes on to say

‘The psyche at times functions outside of the spatio-temporal law of causality. This indicates that our conceptions of space and time, and therefore of causality also, are incomplete. A complete picture of the world would require the addition of still another dimension; only then could the totality of phenomena be given a unified explanation.... I have been convinced that at least part of our physic existence is characterized by a relativity of space and time. This relativity seems to increase in proportion to the distance from normal consciousness, to an absolute condition of timelessness and spacelessness.’

In 1935 the late Harold Burr of Yale University published his living electrodynamic field theory as an explanation for the stability and continuity of life and stated

‘Traditional modern doctrines that the chemical elements determine the structure and organization of the organism, fails to explain why a certain structural constancy persists despite continuous metabolism and chemical flux.’

During the next forty years, he and his co-workers were able to prove that all living organisms, including humans, possess an electric field that operates in a similar manner to the magnetic lines of force around a magnet. This living magnetic force can be measured at a distance away from the body and is believed to be most important for controlling the changes going on within the body.

All life forms are now known to possess an electrical field arranged along the longitudinal axis of the body with a positive and a negative pole at each end. Animal eggs, even unfertile eggs, possess this electrical field with distinct polarity, and a higher voltage is in operation where the head will eventually form, with a corresponding lower voltage where the tail will grow.

Dr. Lyall Watson has made a very detailed study of this phenomena in his book, *The Romeo Error, A Matter of Life and Death*. He states

‘In other words, the embryo cells arranged themselves according to the pattern of an electrical field that was there before the individual came into existence. Like all cells it is made up largely of proteins, including enormous numbers of vital enzymes. We know that the enzyme is an electrical

apparatus and generates a field, so it is reasonable to assume that the field of the egg could be produced either by the enzymes themselves or by their action on the other protein in the cell. However, the field arises, it is clear that if this is the organizer that controls the pattern of development throughout life, then it is produced entirely by the female.

What could happen is this, as an embryo divides and grows, each of the new cells picks up its part of the pattern of the field and reproduces it, so that acting in concert they all together form a faithful and magnified version of the original. This could explain why it is that isolated embryo cells are not able on their own to go on and produce a complete individual.'

The all-important enzyme is catalytic and can react with and change other molecules into forms essential for the well being of an organism and Dr. Watson describes the process thus '... the whole process is governed by electrical interaction. The two reactors fall into each other's fields and are drawn together by opposite electrical charges on mutually attractive parts of their structures; then the enzyme lock is induced to fit the substrate key by being pulled into the right shape by the distribution of their matching charges. Here, at the most crucial level of the organization of life, is evidence of a controlling field which is rigid enough to perpetuate a pattern and yet flexible enough to keep pace with the flux of a living system. Burr was right to call it electrodynamic.

Modern humanity tends to be physically and materially orientated unaware of our individual etheric, astral, mental and causal bodies, unable to visualize ourselves and all living matter, as a complex, interlocking series of scintillating and pulsating energy fields.'

For more than three hundred years we have used science to help us understand our reality. It was Galileo Galilei who first quantified the physical world by measuring the motion, frequency, velocity and duration of all sorts of things from falling stones, to swinging pendulums. Following him was Rene Descartes who developed many of the fundamental techniques of modern mathematics and gave us the picture of the universe as a great machine. Then it was Isaac Newton who formulated the laws by which the great machine runs.

Newton's first contribution was the laws of motion. These state that, if an object is moving in a straight line it will continue forever to travel in that straight line, unless it is acted upon by something else which we term a "force". Its direction and speed will then be altered depending upon the magnitude and direction of the force involved. Every action is then accompanied by an equal, and opposite, reaction.

This destroyed earlier beliefs, developed by Aristotle that the natural inclination for a moving object was to return to a state of rest. Even though everything in our everyday world does return to a state of rest, that is caused by the force of friction as the object passes through the air, or along the ground, and over and through water. In space, without elements that will create friction, an object will move uniformly, forever, until it strikes something else.

Newton's second great contribution to science was his law of gravity. He stated that the same force that pulls an apple to the ground, also keeps the moon in orbit around the earth, and the planets in orbit around the sun. However, he was unable to comprehend how this "action-at-a-distance", or gravitational force, worked. He was, though, the first person to discover principles in nature which unify large tracts of experience, and, he gave those concepts a mathematical expression.

These laws led to the development of modern science and technology, culminating in computers and space probes. They also began the massive disruptions to the natural environment, that directly supports us, and which is now collapsing and threatening us with extinction.

Until the beginning of the twentieth century Newtonian physics had taught that, based on ordinary

sense perceptions, it is possible to picture, in our minds, the workings of the universe because it is something like a great machine. We could describe everything as individual three-dimensional objects in space, and that changes that occurred happened in a smooth linear manner, that we call time.

We could assume, that there exists an objective independent reality "out there" in the universe that has nothing to do with us. This means that we could observe something without changing it, and then accurately predict events. Everything was rational and based on absolute truth and that we could describe the way nature really is even if we could not yet directly observe all of it, such as the atomic and sub-atomic particles that reality is constructed out of.

In 1900 physicists pictured the atom as a minute nuclear ball which was covered with tiny springs, at the end of each was an electron. If the atom was jolted by any method, such as heating, the electrons would jiggle or oscillate at the ends of their springs and give off radiant electromagnetic energy that would account for the fact that hot objects glow.

Unfortunately, when this theory was put to the test it didn't work because it was realized that even moderately hot objects would emit an intense blue-white colour instead of the red glow that such objects were supposed to produce according to classical theory. Classical physics has successfully explained and unified all the diverse fields of science, has unraveled the enigmas of the universe and arranged them in neat packages and had all but satiated the scientific appetite but on this one commonplace phenomena it had no sensible explanation and so it was called the "ultra-violet catastrophe". Indeed, it was a catastrophe for all of Newtonian physics and science in general and commonsense as well for this was the turning point that was to prove to us that everything is not as it seems.

A conservative German physicist by the name of Max Plank had been studying black-body radiation to discover how objects glow brighter as they get hotter. He found that the electrons of an excited atom did not radiate their energy smoothly and continuously but that they radiated their energy in spurts, in specific amounts, dropping to a lower energy level after each spurt until they stopped oscillating altogether. He had discovered that these basic changes of nature were explosive energy packets or quanta which meant that the basic structure of nature was granular or discontinuous. He had inadvertently fathered the revolution of quantum mechanics.

One hundred years before Max Plank's discovery an Englishman named Thomas Young had proven that light is made of waves in his double slit experiment. A wavelength is the distance between one crest of a wave and the next. The longest radio waves are over ten kilometres long while visible light has wavelengths of between four to eight one hundred thousandths of a centimetre and x rays are only about one billionth of a centimetre long.

The frequency of a wave tells us how many wave crests pass a given point each second. Therefore, the higher the frequency of a light wave, the shorter its wavelength must be and the lower the frequency of a light wave, the longer its wavelength must be. Plank discovered that the energy of a light quantum increases with frequency and so the higher the frequency the higher the energy and thus energy is proportional to frequency. High-frequency light such as violet light has a short wavelength and high energy while red light has a long wavelength and low energy.

Even though light had been proven to be a wave, in 1905 Albert Einstein burst upon the scene and proved that light was also made up of particles, which he called photons. A beam of light is analogous to a stream of bullets, said Einstein, minute energy packets or quanta. His paper on the quantum nature of light won him a Nobel Prize in 1921.

Einstein theorized that energy itself is quantized and that each photon of a given colour has a certain

amount of energy which does not diminish so that reducing the intensity of a beam of coloured light only reduces the number of photons in the beam. A wave cannot be a particle and a particle cannot be a wave, and yet, light had proven to be both, and this wave-particle duality marked the end of the classical "either-or" way of looking at the world.

In 1924 Niels Bohr, who had previously developed the specific-orbits model of the atom that did away with the electrons on springs idea, got together with H. A. Kramers and John Slater and suggested that the waves in the wave-particle duality of light were actually "probability waves", a strange kind of physical reality in between a possibility and a reality. A tendency that, in an undefined way, existed of itself, even if it never became an actual event.

The solid "nuts and bolts" ideals of classical physical science had suddenly made a quantum leap from the left hemisphere of the human brain with its assertive rational thinking to the right hemisphere where the thought processes are receptive, intuitive and able to see whole patterns. Now science was using both hemispheres of the brain and amazing new discoveries were about to be made.

While physicists were trying to explain how waves can be particles a French scientist, Louis de Broglie, in his doctoral thesis in 1924, using the simple equations of Plank and Einstein, formulated a simple equation of his own that demolished what was left of the classical view. He proposed that not only are waves particles, but that particles are also waves. The equation determines the wavelength of matter and states that the greater the momentum of a particle of matter, the shorter is the length of its associated wave.

Matter waves are not detectable in our normal macroscopic world because they are so incredibly small that their effects on the ordinary world are negligible. However when we get down to particles such as electrons, the associated matter wave is larger than its electron and the Davisson-Germer experiment at the Bell Telephone Laboratories in 1927 proved this by reflecting electrons off a crystal surface in a manner that could be explained only if the electrons were waves.

Further experimentation revealed that not only electrons, but also atoms and molecules, have their associated matter waves. This then proved that not only did electromagnetic radiation such as sunlight have a wave-particle duality, but that all of solid reality such as us, and our world, has a particle-wave duality.

Stimulated by de Broglie's matter waves, Erwin Schrodinger, a Viennese physicist in 1926, hypothesized that electrons are not spherical particles but patterns of standing waves. Standing waves are easy to create in our normal world simply by attaching a piece of rope to a pole and pulling it tight then flicking our wrist sharply up and down and a hump or traveling wave will appear and travel down the rope to the pole and will return upside down to our hand. By sending a series of humps or traveling waves down the rope a pattern of standing waves will appear that are stationary at their widest points, and at the ends or nodes of each standing wave.

It does not matter how long or short the piece of rope is, no half of a standing wave appears at either end, only a whole number of standing waves will appear on the rope and they will divide the rope evenly. This means that the only way that the number of standing waves on the rope can increase or decrease is in quantum jumps or discontinuously.

Musical instruments create their sounds by the vibrations of their standing waves. When we examine sub-atomic particles, we find that electrons are the segments of vibrations or standing waves and are bounded by their nodes in a three-dimensional pattern around their nucleus. The standing matter wave phenomena forms the real "body" of the atom and the frequency of these waves is what we call energy. Reality is created out of standing waves forming a frequency domain

but now we must ask, standing waves of what? What exactly is waving?

It was the genius of Albert Einstein who put the final pieces of the reality puzzle together with his 1905 Special Theory of Relativity and his 1915 General Theory of Relativity. In the first theory he showed us that space and time are not separate as we had earlier believed but are one and the same thing; the space-time continuum. Something cannot exist at some place without existing at some time, nor can it exist at some time without existing at some place. Our reality is a four-dimensional space-time continuum.

A continuum is something whose parts are so close together that it cannot be broken down into them but flows continuously. Time is therefore relative to space, there is no single time which flows equally for all observers. There is no absolute time and it does not pass or flow for it is a static and non-moving aspect of space. It is the fourth dimension of three-dimensional space. If we could observe reality as it actually exists in its four dimensions, we would see that everything that now seems to unfold before us with the passing of time, already exists, the past, the present and the future, all are static standing waves of the space-time continuum.

Einstein's mathematical teacher Herman Minkowski, inspired by his famous student, developed a simple diagram of space-time showing the mathematical relationship of the past, the present and the future. This proved that all the past and all the future for each individual always meet at one single point, what we call the "now". Furthermore, the "now" of everyone is specifically located and will never be found in any other place than "here".

The most famous aspect of Einstein's Special Theory of Relativity is the revelation that mass is a form of energy and energy has mass. This is the world's most famous formula, $E=Mc^2$ and it means that the E energy contained in a piece of matter is equal to the M mass (weight) of the matter multiplied by the C speed of light squared (which is an extraordinarily large number). This means that even the tiniest particle of matter has within it a tremendous amount of concentrated energy and this was proven by the development of the atomic bomb.

Einstein was the first to say that energy has mass and mass represents energy, they are one and the same thing in that matter is an extraordinary concentration of energy. Life is only made possible on this planet because of this equation.

Our sun and the other stars are continually converting mass into energy by squeezing hydrogen atoms, four at a time, into a single helium atom. This creates enormous gravitational forces. Because a helium atom has less mass than four hydrogen atoms, the extra mass is converted into radiant energy, heat and light. The very large amount of energy contained in each atom of matter allows the stars to burn for countless millennia.

In Einstein's General Theory of Relativity, the question of what gravity is was finally answered. We know that there are two kinds of mass or weight. One is gravitational mass, such as the weight of an object measured on a balance scale. The other is inertial mass, or the measure of the resistance of an object to acceleration. We can feel this second mass if we accelerate our car very rapidly and take notice of the extra weight caused to the passengers, as their bodies try to resist the acceleration and are forced back into their seats.

Gravitational mass and inertial mass are equal, and Einstein discovered through the principle of equivalence that acceleration, or change, in velocity is the equivalent of gravity. So, Newton's unexplained action-at-a-distance, or gravitational force that caused the apple to fall on his head, was caused by the equivalent of acceleration. Gravity and acceleration are two ways of saying the same thing and that is motion.

The motion of matter through the space-time continuum distorts the space-time continuum into a curvature. Very large congregations of matter such as suns, planets and moons warp the continuum into very large four-dimensional curvatures that would look a little bit like a hilly countryside.

Any object traveling through the space-time continuum will take the easiest path between two points, which means that as it approaches very large bumps in the continuum it will follow the path of least resistance along the valleys around the bumps. This means that the earth and the other planets of our solar system are not orbiting the sun because of some mysterious force that the sun is exerting on them but because they are following the easiest course through the warped neighborhood of the sun. The moon orbits the earth for the same reason.

Now for the final summation of what reality is all about. We know that the universe is made up out of a space-time continuum and that matter causes a curvature in the continuum. This continuum creates a warped neighborhood which, in turn causes the matter to accelerate, and so we have gravity which is motion.

However, we already know that matter and energy are just two different forms of motion. Circular motion and straight-line motion, and the space-time continuum is also motion. Therefore, a piece of matter is a curvature of the space-time continuum, and our living planet is a pronounced curvature of the continuum, finding its easiest path through the continuum, around the vicinity of a very pronounced curvature (the sun). In other words, circular motion interrelating with straight line motion causes curvatures in the background motion and we end up with nothing but motion.

Now that science had a good understanding of the basic structure of reality, the philosophical implications could be examined. In 1927 physicists, including Einstein and Bohr, met in Brussels, Belgium, to do just that. The results include some of the most important statements in the history of science.

It was decided that since science is the study of correlations between experiences, then quantum mechanics is a complete theory, because it correlates experience correctly, in that it works in all possible experimental situations. This statement was termed the Copenhagen Interpretation of Quantum Mechanics, reflecting the dominant influence of Niels Bohr, who came from that city. From then on laws that govern aggregations superseded the laws governing individual events.

Gary Zukav in his wonderful book *The Dancing Wu Li Masters*, essential reading for anyone trying to understand modern physics, writes,

‘The Copenhagen Interpretation does away with the idea of a one-to-one correspondence between reality and theory. It is very pragmatic. The philosophy of pragmatism goes something like this. The mind is such that it deals only with ideas. It is not possible for the mind to relate to anything other than ideas. Therefore, it is not correct to think that the mind can ponder reality. All that mind can ponder is its ideas about reality. Therefore, whether something is true is not a matter of how closely it corresponds to the absolute truth, but of how consistent it is with our experience.

The extraordinary importance of the Copenhagen Interpretation lies in the fact that for the first time, scientists attempting to formulate a consistent physics were forced by their own findings to acknowledge that a complete understanding of reality lies beyond the capabilities of rational thought. The new physics was not based on "absolute truth", but upon us.’

This is because our only access to the physical world is through experience via our senses. What we experience then is not external reality but our interactions with it and our perception of reality is our cognitive construction of it that occurs within our brain.

This concept of our interaction with the study of physics was named "complementarity" by Niels Bohr when he attempted to explain the wave-particle duality of light. Individual events are always particle-like whereas wave behaviour is detected as a statistical pattern such as interference.

Particle-like behaviour and wave-like behaviour are the only properties that we ascribe to light. However, it is not possible for light to be both particle-like and wave-like at the same time, they are mutually exclusive. So, they are not the properties of light but of our interactions with light. Therefore, light has no properties independent of us and therefore does not exist! This also means that without light and anything else to interact with, we do not exist!

Of course, we know that we and light do exist. Since it is now known that even we, and all other matter, exhibit wave-like behaviour everything has a wave-particle duality which can then only mean that the world does not consist of things, individuals, but only of interactions. It is not a structure consisting of independently existing entities but a web of relationships between the entities who's only meaning, and purpose arise wholly from their relationship to the whole.

Here then is scientific proof that we are not the individual human beings that we at first took ourselves to be. We are a web of conscious interactions and interrelations occurring on the surface of a living planet and therefore we really are the awakening of the planetary mind. Since the living planet is also a web of interactions and interrelationships with the rest of the cosmos, we can be positive that we are also the awakening of this part of the universal mind.

Even more amazing is the fact that it may not just be us that is conscious. When Thomas Young's double slit experiment, which proved light is wave-like, is rerun with individual protons instead of beams of light, the photons appear to consciously know whether the slit, other than the one that they traveled through, was opened or closed. In 1935 Albert Einstein, Boris Podolsky and Nathan Rosen thought up an experiment that forty years later was tested in the Stern-Gerlach device. It showed that particles in two different places instantaneously knew what each other were doing even though they were in flight in opposite directions. Some physicists are now speculating that photons may be conscious or in other words that the basic aspect that reality and the universe is constructed out of, is fully conscious!

The physicist E. H. Walker speculates that 'Consciousness may be associated with all quantum mechanical processes.... since everything that occurs is ultimately the result of one or more quantum mechanical events, the universe is "inhabited" by an almost unlimited number of rather discrete conscious, usually non thinking entities that are responsible for the detailed working of the universe.'

Gary Zukav further elucidates on this remarkable theory. 'Something is "organic" if it has the ability to process information and to act accordingly. We have little choice but to acknowledge that photons, which are energy, do appear to process information and to act accordingly, and that therefore, strange as it may seem, they seem to be organic. Since we are also organic, there is a possibility that by studying protons we may learn something about us.'

The scientific discovery that energy itself could process information and was therefore organic, and that it presented itself in patterns that we call waves, is truly astounding. Gary Zukav, while attending a conference on physics at the Esalen Institute in Northern California in 1976, met a T'ai Chi Master by the name of Al Chung-liang Huang, who told him that the study of physics in Taiwan is called Wu Li which means "Patterns of Organic Energy". Wu can mean either matter or energy, and Li means universal law and order, or organic patterns. So taken were the physicists with this excellent definition of physics that Gary Zukav entitled his book on the subject *The Dancing Wu Li Masters*.

In 1964, J. S. Bell, a physicist at the European Organization for Nuclear Research (CERN) in Switzerland, published a mathematical proof that implies that at a fundamental level the separate parts of the universe are connected in such an intimate and immediate way that the principle of local causes must be false. Gary Zukav explains it as follows.

‘The principle of local causes says that what happens in one area does not depend upon variables subject to the control of an experimenter in a distant space-like separated area. The simplest way to explain the failure of the principle of local causes is to conclude that what happens in one area does depend upon variables subject to the controls of an experimenter in a distant space-like separated area. If this explanation is correct, then we live in a non-local universe characterized by superluminal (faster than light) connections between apparently "separate parts.”

In 1975 a physicist by the name of Jack Sarfatti published a theory entitled "Superluminal Transfer of Negentropy Without Signals" in which he postulates that each quantum jump of energy is a space-like superluminal transfer of negentropy which can be used in a controllable way to communicate. "Negentropy" is another word for order and "signal" means the transfer of momentum/energy through space-time so this theory means that a faster-than-light communication between two events without the transfer of energy is taking place during each quantum jump.

An instantaneous change in the order, quality or coherent structure of the energy takes place which could be used for communication and so we now have a scientific hypothesis for telepathy. For the first time psychic phenomena can be explained mathematically!

It is generally believed that there is no scientific evidence to support the possibilities of supernatural phenomena, life after death, or the existence of higher orders of reality. However, the most recent attempts to explain the interference, or wave patterns of light, that can be seen simply by shining a light through two slits is called by Jack Sarfatti a "non-local phase-lock over space-like intervals". "Non-local" means beyond our normal four-dimensional space-time level of reality or in other words a higher level of reality that is more coherent or ordered than our level of reality. Every time anything that occurs in our level of reality, from the movement of sub-atomic particles, to our own actions, there is a complete correlation in the higher levels of reality.

Whenever separate entities on our level of reality interact with each other they become correlated at the next highest level of reality. This means that everything that appears to be separate in our level of reality is part of a greater whole in the next level of reality. Like everything else, the whole is always greater than the sum of its parts and so we have a multilevel hierarchical reality and every step up to a new level of reality is a step to new order.

Therefore, in the dialect of physics, "locality fails". All parts of the universe are in an immediate connection and their relationships depend on the state of the whole system of reality, an unbroken wholeness that cannot be analyzed as separate or independent parts.

The unbroken wholeness that-which-is, presents itself to us as a web or pattern of relationships, and we then divide this pattern up into individual entities which are just idealizations in our heads. When we conduct an experiment, we divide reality into two parts, the observed system and the observing system. The observing system is the environment, including the scientist who is conducting the experiment. This surrounds the observed system, which is propagating in isolation, or traveling undisturbed, according to the law of causal development known as the Schrödinger wave equation.

The observing system must be separated into two areas, the region of preparation, which is the experimental apparatus, and the region of measurement, which is the measuring apparatus. If we were to conduct the double slit experiment, we would put a light source, and a screen with two

vertical slits, in the region of preparation; and an unexposed photographic plate on the opposite side of the screen from the light source, in the region of measurement. With the light on and only one slit open (which has a width as small as the wavelength of the incoming light such as a razor slit) the light diffracts and spreads out like a fan producing a bright area that fades into darkness at the edges.

However, when we uncover both slits the waves of light diffracting from the two slits interfere with each other. Where one wave crest overlaps another wave crest, an intensification of light results. Where a crest meets a trough, they cancel each other out, and no light reaches the plate. The result is alternating bands of light and dark, which is a well-known phenomenon of wave mechanics called interference.

If we conduct the same experiment using a light gun that can fire one photon of light at a time, and have both slits open, no photon will hit any of the alternating bands of darkness and will only strike the areas normally illuminated if we had used the first ordinary light source. However, if we leave only one slit open the single photon will strike the area that would be dark if both slits were open. The problem is, how did the single photon know that the other slit was closed and so could go to an area that must be dark if the other slit is open? This is the experiment that showed that photons, which are energy, can process information and act accordingly and thus are conscious and organic.

Photons, of course, do not exist by themselves and only become isolated from the fundamental unbroken unity because we are studying it. Even then it is not truly isolated. By separating the region of preparation from the region of measurement, we can study in isolation the development of an observed system which is what quantum mechanics is based on. So, what exactly is this unbroken wholeness that makes up our multilevel hierarchical reality and forms the substructure underlying experience?

To understand this unbroken wholeness, we first have to reduce this multi-dimensional reality down to a three-dimensional reality, so that it is compatible with our experience. We do this simply by taking a measurement. Before we take the measurement, the multilevel unbroken wholeness is undergoing a dynamic, or in other words changing with time, unfolding of possibilities. These unfolding possibilities are traveling undisturbed and propagating in isolation according to Schrödinger's wave equation of natural causal law. During this time all the things that could happen to it are unfolding; a developing wave function of possibilities following an unvarying determinism. This wave function looks, mathematically, like a development of waves which constantly change and proliferate.

Now let us conduct the double-slit experiment with both slits open. This time we place a photon detector at both slits and then turn on the light source, so that it is now emitting photons. A photon can now pass through one or the other of the two slits so each of these two possibilities is included in the wave function of that photon. Until one of the detectors registers a photon its wave function exhibits a smooth and dynamic development, but once the detector has fired, one of the possibilities has become an actuality and the development of the wave function collapses in an abrupt and discontinuous manner and so a quantum jump has occurred.

Which part of the wave function collapsed is a matter of chance which means that the universe is basically accidental. Einstein did not like this because he found it hard to believe that "God would play dice with the universe". More research resulted in the mathematics of chaos, which proved that the universe is random, unpredictable and chaotic rather than predetermined, predictable and ordered.

As soon as one of the detectors in our experiment has registered a photon, measurement has been made, and so we have interfered with the development of possibilities occurring in the isolation of

the observed system. We have actualized one of the several potentialities that were a part of the observed system while it was in isolation. We have reduced a multi-dimensional reality down to a three-dimensional reality. The observed system has interacted with the observing system and has produced an effect on a measuring device.

From our old classical point of view a real photon travels between the light source and the screen with a 50 - 50 odds that it would pass through either one or the other slits. From a quantum point of view there was no real particle called a photon until one actualized at the detector, and before then there was only a wave function or developing potentiality of the unbroken wholeness. The wave function is the physicist's description of reality and is the fundamental theoretical quantity in quantum mechanics because it is the most fundamental level that physicists have been able to probe. But what does this wave function describe? Gary Zukav explains it for us as follows.

‘The wave function, since it is a tool for our understanding of nature, is something in our thoughts. It represents certain specifications of certain physical systems. Specifications are objective in the sense that scientists and technicians can agree on them. However, specifications do not exist apart from thought. Also, any given physical system satisfies many sets of specifications, and many physical systems can satisfy one set of specifications. All these characteristics are idea-like and, to an extent, that which is represented by the wave function is idea-like, even though it is objective.

However, these specifications are transcribed into wave functions that develop according to a determined law (the Schrödinger wave equation). This is a matter-like aspect. The thing that develops describes only probabilities. Probabilities can be thought to describe either things that exist apart from thought, or things that exist only within thought. Thus, that which the wave function represents has both idea-like and matter-like characteristics.’

Gary Zukav goes on to state that ‘Since the wave function is thought to be a complete description of physical reality and since that which the wave function describes is idea-like as well as matter-like then physical reality must be both idea-like and matter-like. In other words, the world cannot be as it appears. Incredible as it sounds, this is the conclusion of the orthodox view of quantum mechanics. The physical world appears to be completely substantive (made of "stuff"). Nonetheless, if it has an idea-like aspect, the physical world is not substantive in the usual sense of the word (one hundred percent matter, zero percent idea).’

The central theme of religion throughout history has been the reconciliation of the philosophies of Materialism, which states that the world is matter-like, regardless of our impressions, and Idealism which says that reality is idea-like, regardless of appearances. Now science has come to the rescue and states quite firmly that reality is both matter-like and idea-like.

In April 1977, Professor Bohm, while giving a lecture to professional physicists at the Lawrence Berkley Laboratory made the following statements, which were noted by Gary Zukav in his book *The Dancing Wu Li Masters*.

‘There is a similarity between thought and matter. All matter, including we, is determined by "information". "Information" is what determines space and time. The ultimate perception does not originate in the brain or any material structure although a material structure is necessary to manifest it. The subtle mechanism of knowing the truth does not originate in the brain.

The word "reality" is derived from the roots "thing" (res) and "think" (revi). "Reality" means "everything you can think about". This is not "that-which-is". No idea can capture "truth" in the sense of that-which-is.’

We can observe from this study of higher physics that reality is not as it appears to be. The level of

reality that we experience may only be a part of the picture and we may be correlated with higher levels of reality. This can then help us to understand how supernatural phenomena may well be possible. The possibility of the separation of the soul from the body at death and its continued existence at a higher level of reality in what we call the astral or heavenly realm, that we are always directly correlated with, can begin to be understood from a scientific viewpoint.

We have observed in this chapter that many experts in their different fields of study have concluded that a higher level of reality may exist, and they have given it many different names. Karl Pribram's "higher frequency domain" and his "holographic theory", Dr. Kenneth Ring's study of the near-death experience and his "world of light", the Organicists and their "vitalistic principle". Robert Sheldrake's "morphogenetic field", Dr. Carl Jung's "acausal connecting principle of synchronicity" or "collective unconsciousness", Harold Burr's "electrodynamic field" and quantum physics "unbroken wholeness" and "that-which-is" all point to a growing acceptance that there is more to reality than meets the eye.

Dr. Lyall Watson, in his examination of Harold Burr's electrodynamic field theory, states in his book *The Romeo Error*; 'Burr concluded that his field both determines and is determined by the organism with which it is involved. This reciprocal action fits well with the new quantum mechanics. When it was known only that action in matter produced waves and formed a field, it was impossible to conceive of a wave pattern that could continue to exist for long after the matter which produced it had disappeared. Now that we know that matter itself can be wave-like, the problem no longer exists. it seems clear that the physicists have no theoretical objection to the existence of matter waves in free space. We have absolutely no evidence to suggest that this is how an energy body, or a personality survives in the absence of its physical counterpart; but it is important to note that it could be so.'

There are two final basic assumptions that we always make when trying to come to grips with an understanding of our reality. The first is that we have free will and the second is that once we have made a choice and begun to take a direction reality then proceeds from there. But in the final analysis of quantum mechanics we find that neither of these is particularly true.

Since Bell's theorem shows us that reality is not as it appears (the principle of local causes is incorrect), and if we do not want to accept that faster-than-light connections occur between all of reality, then we are forced to confront the possibility that our assumptions about free will are false. For instance, if we had conducted the double slit experiment, we would assume that we could have the free will to decide which slit we opened and closed and that a particular result will emerge (the wave function collapses and only one possibility becomes reality). However, there is a theory of Superdeterminism which states that it is not possible that the world could ever have been other than it is.

The latest studies of the Big Bang theory of the initial creation of the universe has shown us that the actual structure of the primordial exploding entity determined precisely the position of all the galaxies throughout the subsequent universe. When we think very carefully about everything that has occurred to us, and what we are presently doing, we will discover that in a way it is all predetermined. We are always at the mercy of all the other happenings around us, our genetic makeup, the natural and social history that have already occurred and placed us in our present position. Perhaps in our experiment we were already predetermined to open one slit and close the other.

The view of a superdeterministic reality accords well with the Buddhist understanding that free will is a part of the illusion of ego and its separateness from the rest of the universe is not possible because if we are the unbroken wholeness there is nothing else to which we can exercise free will on. Like the debunked classical view of physics, the concept of "free will" is based upon the

assumption that we exist apart from the universe upon which we can exercise free will.

Even if we still think that we can make a decision we have to contend with the Many Worlds Theory developed in 1957 by Hugh Everett, John Wheeler and Neill Graham, that states that the wave function is a real thing as are all of its possibilities that it represents, and that they all happen. So that when the wave function "collapses" the universe splits into an endless number of branches of reality.

This means that every time we decide, or take a course of action, the wave function of possibilities that we consist of actualizes all of these and splits us and the rest of the universe into countless branches of reality that are all inaccessible to one another. So, although we believe that reality only exists in our branch, and off we go in one direction there are now actually two or more of us and one of us is going off in the other direction.

If this is so then there is certainly no need to regret one's past actions or wish that we had done something else for in fact, we did indeed travel that other path. Perhaps this even negates the idea of right and wrong because our decisions may be predetermined, and we may have taken both the right and the wrong path at the same time as the universe split. However, we must not use such possibilities as an excuse for our actions and should always try to take the path of harmony and love.

The advantage of the Many Worlds interpretation of quantum mechanics is that it does not require an "external observer" to collapse one of the possibilities of the wave function into physical reality for there can be nothing external to the unbroken wholeness. The wave function of the universe is endlessly proliferating into different branches of reality so that all possibilities are accounted for and correlated with one another, producing the ultimate unity of that-which-is. Unfortunately, we appear to be in that branch of reality where most of the western world's population still cling to the old Newtonian physics and believe that we are separate from the rest of reality and can do what we like with the world.

The latest scientific discoveries are showing us that all life is conscious. Even bacteria think their own little bacterial thoughts, as do all living things from amoebas to us. Humans, with magnificently complex bodies and brains, built entirely of bacteria- constructed cells, so that we could possibly be identified as giant clever bacteria, to a large degree tend to separate ourselves from the rest of the living planet, and regard other life forms as less important.

This way of looking at reality produces only one result. Once we loose sight of our connections with animals and plants, it is a very minor step towards loosing our connection and respect for other human beings. Consequently, the most horrendous atrocities are daily committed right around the globe because we have decided that only our individual selves are of any real value. Nowadays it does not matter to many individuals or companies whether plant, animal or human communities are exterminated if certain individuals can either make large monetary profits or sustain their own belief systems. What it all really comes down to in the end, is much of humanity's quest for personal power.

This is the reason the world's economies are sick, why most nations are heavily in debt and therefore failures, and why the entire planet is very rapidly dying. The Earth faces an extinction episode of historic proportions with estimates of extinction rates as high as more than 100 per day and rising. It has been estimated that 20 % of the planet's diversity will be lost within one or two decades.

Losses in some ecosystems, such as rainforests, are particularly severe. Many educational, scientific, agricultural, pharmaceutical and aesthetic benefits are being lost. This loss of biodiversity

is considered to be among the greatest problem's humanity faces.

With that much of the planet's body dying how can the rest support the planet's mind and for how long? This quest for personal power at the expense of the rest of the community is the main reason for the continuous warfare across the planet. It is eating up the world's scarce resources and creating the ever-greater probability of a world-wide ecological and economic collapse which will exterminate most of us. The planet is now dominated by individuals who can murder the entire human, animal and plant populations in a bid to protect their beliefs and personal power structures.

Many religious people take comfort in the belief that when they die, they will be able to continue to exist as a conscious soul in heaven. But if Heaven is an integral part of this living planet, and not some far-removed alien environment, it no doubt co-exists with us and may consist of quite fragile, consciously controlled, higher energetic frequencies. Its existence may depend on constantly evolving consciousness on this living planet. Humanity may very well be threatening heaven itself with our insane, unthinking actions.

We have no direct proof that this higher frequency domain exists or how it survives. We now know that this frequency domain that we call "our world" consists of very fragile interrelationships that we are rapidly destroying with our rapid technological progress. We have unwittingly begun to destroy the ozone layer that protects us from ultra-violet radiation, have caused global warming and are witnessing the unexpected extinctions of essential species across the globe, such as the disappearance of our frogs from undisturbed environments. Just a couple of hundred years ago we believed that it was not possible to damage our world or exterminate its creatures because God would not allow such things to happen to "his" creation. Today we know differently.

However, we have no knowledge whatsoever of the interrelationships of a proposed higher frequency domain and therefore should consider how our actions may relate to it. For all we know the enormous amount of higher energetic vibrations produced by a full scale thermo-nuclear war may be enough to destroy the higher frequency domain of the astral realm if it co-exists right here with us. Perhaps we could destroy the god-like consciousness that may be the sum of all the minds of heaven and earth. Even if the astral realm is immune to such punishing energy surges, heaven itself may no longer evolve and develop greater consciousness for it would then be part of a dead planet, and without the continuous influx of more and more conscious minds being daily added to the higher frequency domain, perhaps heaven itself may begin to dissolve and dissipate.

Until very recently the planet's consciousness believed that it was at the centre of the universe. It was partly correct in that every object, of every size, is in the very centre of its own universe, but at the same time every object is exactly equal to every other object, and all go to form a larger universe. This is true whether the objects are sub-atomic particles, atoms, living organisms, ecosystems, planets, suns, solar systems, galaxies, or the observable universe. All are at their own centre but, at the same time, all are part of a larger existence.

However, the observable material universe may not exist apart from the spiritual universe for they may complement each other. If we believe in the science of quantum mechanics and the theories of physicist, Jack Sarfatti, everything that occurs in our four-dimensional space-time level of reality causes a faster than light correlation with higher levels of reality. This causes all parts of the universe to be in immediate communication that creates an unbroken wholeness that cannot be analyzed as separate or independent parts.

Therefore, the spiritual aspect of the Earth may not exist on some other planet, or up in the sky, but may co-exist right here with the planet. The material living environment, that one observes every minute of one's life, may also be the energetic or spiritual environment.

This is how the Australian Aboriginal people see their land, it is not just a material landscape to be plundered for its resources, it is also a spiritual landscape utterly imbued with sacred significance. Its entire topography resonates with the story of creation and the history of all the people and everything else that has ever lived there.

They understand the unbroken wholeness of quantum mechanics and describe it as "one flesh, one spirit, one country, one dreaming". It is therefore useful to examine how one culture has come to grips with this theory that the higher frequency domain or spiritual world directly correlates with the lower frequency domain or physical world.

The Dreaming or "Tjukuba" is the higher frequency domain or spirit realm, the metaphysical expression of reality, the awakening of consciousness and the creation of our level of material reality. The "dream time", the three dimensions of conscious space interrelating with the fourth dimension of time, is the unique understanding that these remarkable people have given to the world. But like all things it has taken a great deal of time to express itself.

When Europeans discovered the habitat of the people of the "Great South Land" it was found to be like no other place on earth, with unique people, animals and plants. The most ancient of weathered landscapes inhabited by the most ancient fauna and flora and protected by the most ancient people interrelating with the most ancient culture. An entire continent of hunters and gatherers and yet not the slightest sign of civilization or religion as far as a European mind could detect. They could not comprehend that they had stumbled upon an entirely sacred continent.

It took almost two hundred years of examination to realize that although the origins of everything here were the most ancient, that simply meant that everything had even more time to adapt and that, in fact, everything was very highly evolved, was extremely modern in that it used some of the most intricate methods for survival.

In the tropical northeast the greatest assemblage of the earliest flowering plants, still grow where they first evolved. Across the rest of the continent grow their descendents, unaffected by either drought or fire, and which have now been spread by Europeans to the rest of the world which they are rapidly conquering.

Inhabiting these ecosystems are mammal-like reptiles, the monotremes platypus and echidna, whose ancestors dominated the continent for 70 million years before the rise of the dinosaurs. The echidna and the platypus diverged into their different families 130 million years ago, 65 million years before the dinosaurs went extinct, yet they are still the most common and successful mammals in their ecosystems and hunt their prey by detecting the electrical currents that operate within the nerves of invertebrates .

Almost as ancient are the marsupials. These have adapted to almost every environment and food source, including the ability to eat the least favourable of foods, eucalyptus leaves, which produced one of the most remarkable animals, the koala. The insectivorous bandicoots have the shortest gestation of any mammal, 12 days from conception to birth.

The grazing kangaroos and wallabies have developed the most efficient means of terrestrial locomotion in that their bipedal hopping, the ability to leap fences, or bounding at great speed, expends less energy than quadruped running or galloping. This also leaves their hand-like paws free for grasping and manipulation.

Many of these marsupials also have the most efficient and advanced methods of reproduction. The female is almost continuously pregnant from the time she reaches sexual maturity and always has a second fertilized egg or blastocyst remaining in a quiescent stage waiting to resume development

and proceed to birth when the previous pouch young is about to leave or is lost or dies. The mother is also able to produce milk of two quite different compositions for two suckling young of very different ages at the same time to accommodate the baby in the pouch and the almost weaned young that still places its head in the pouch to suckle. In this way they can survive the terrible droughts that the continent is known for.

It was in this vast, impoverished landscape, harbouring the greatest diversity of forest and vegetation communities known anywhere on earth, even though it is the most drought-ridden of continents, that the Aboriginal people developed an understanding of reality that agrees with the latest discoveries of the science of physics. They realized that life is a web of interactive particles in which humanity and nature are co-equal partners. They understood that they could not be detached from this web of relationships and they firmly believe that reality is constructed of two levels, the physical and the metaphysical interrelating to form an unbroken wholeness termed the "Dreaming".

Because of the paucity of resources, including nutrient-poor soils, unreliable rainfall and a lack of plants and animals suitable for domestication, the people of the Great South Land were forced to survive as semi-nomadic. However, this had its advantages over the sedentary people of much of the rest of the world who are forced to retire from and fear the wilderness. Such sedentary people are constantly under stress by having to live amid large controlled populations living in enclosed spaces under the authority of powerful groups, much like animals in a zoological garden. Consequently, they are forced to regard edifices as the objective representations of inner ideals and so construct monuments. Not so the nomadic people who live in a world of openness, can examine the workings of nature in great detail and who can then come to an understanding of universal consciousness.

There are, of course, long term problems with a nomadic life style in that a freedom loving people unconcerned with material possessions or the desire to dominate others do not build up a power base and are thus susceptible to invasion by sedentary people forced by over population and resource depletion to invade new territory. This is what happened to the Aboriginal people a couple of hundred years ago when Europeans arrived and seized the continent and attempted to annihilate the Dreaming. However, it is over population and resource depletion that has destroyed every sedentary civilization in the course of human history allowing nomadic people to once again arise and dominate their ancient tribal lands. We should remember that an examination of the past is always a very clear indication of the future and that all civilized people believed that their particular society would survive.

Even though the religion and philosophies of the Aboriginal people have much relevance to our society and can be regarded as the Australian Mind, with rock art galleries in Kakadu National Park recently dated at sixty thousand years, making it the world's oldest known artistic culture, an understanding of the Dreaming is almost completely unknown to the outside world. An esoteric bookshop that I visited in Byron Bay had the shelves crammed with philosophical volumes from almost every culture on earth, every religion and culture represented by dozens of authors, and yet a single slim volume, *Mysteries of the Dreamtime, the Spiritual Life of Australian Aborigines*, by James Cowan, represented the native philosophies of the Australian continent. His study of this remarkable religion should be read by all Australians, in particular, and he has this to say about "The Dreaming".

'It gives us insight into mankind's constant endeavor to realize the shape of divinity in all its mysterious and subtle forms... the metaphysical expression of primordial truths that trace the birth of the world and man's place in it.'

The spiritual master of the Dreaming is the Karadji and James Cowan describes his abilities as follows;

‘.... seizing what is imperceptible might come nearer to a description of the Karadji's inherent ability to bridge the gap between what is manifested and the spirit-world of the Dreaming. The Karadji, as cultural exemplar, reflected a unique human type. In a conservative society perhaps too much pre-occupied with ancestral allegiance and the past, he often represented a potent force for change. Because of his direct contact with the Dreaming and its pantheon of spirit-figures, he was one of the few people able to create new dances, songs and stories. Through him a tribal community could remain culturally vital and grow accordingly.

The importance of the Karadji as resident tribal sage and seer cannot be underestimated. The arcane information at his disposal was a constant source of spiritual security among other tribal members who looked to him for answers in times of uncertainty. He alone holds the key to renewed contact with the Dreaming and an understanding of the epiphanic state. ... a man who has reached a level of profound spiritual insight in accordance with the ritual belief of his culture. Such men possess the knowledge, psychic insight, mystical experience and personal authority that make them worthy members of this sacred order known as men of high degree. Quite obviously such men, when they have attained to this status, must be like what we might know as prophets or saints.’

However, all members of the society were fully responsible for the maintenance of the Dreaming through their totems which represents his or her pre--existent condition, their direct contact with the dreaming, from whence they came and where they will go after the death of the body. Cowan describes it as follows;

‘...for a totem is an embodiment of each individual in his or her primordial state. That is before the individual was born into the world.... Without it he is unable to identify with his primordial state or metaphysical persona, since he would have lost contact with the dreaming altogether. The totem is a sacred link with the dreaming, with a man's incarnation as a human being....To sever this connection is to destroy a man's spirit and ultimately his desire to live.’

All individuals had to make a Dream Journey to the place of their totemic origin every year, conducting sacred ceremonies and following their "song lines", from which the expression "walkabout" comes from. James Cowan states

‘We are looking at a sacred journey in which each stage is imbued with sacred significance..... the Aborigine is highly conscious that his enactment of a Dream Journey involves a personal renewal There are two levels to the Dream Journey. One is largely a social activity in which participation is encouraged by all the members of a family group. The other is a more personal activity embarked upon alone in order that the individual might experience a closer understanding of his sacred nature.

In both cases, however, there is a certain amount of ritual activity designed to encourage a new awareness of environment and the way personal "country" can inspire a greater understanding of nature itself. If these two dimensions of the same journey were to be compared, then it might be to regard the former as being exoteric or outward and the latter as an esoteric or inward journey. Yet both journeys overlap in their significance because many of the stories, myth cycles, sacred environments (known as "hot places") and cave paintings are common to both.

The initiate who has embarked upon the inward Dream Journey and participated in the ritual activity associated with various hot places or Dreaming sites, has, by his actions and involvement with tribal elders, entered a metaphysical relationship. It is this relationship that so profoundly affects the entire Aboriginal culture even today, because through the Dream Journey, all Aborigines can share in this principal bonding, each according to his or her nature and aptitude. Without the Dreaming the Aborigine culture would have disintegrated long ago’.

The people see the landscape as truly alive and existing not just physically but as a spiritual panorama as well so that it is a cultural landscape steeped in "Kurunba", of life-essence. Cowan explains it as follows:

‘Kurunba or "life-essence" is a metaphysical expression denoting the presence of a cultural layer within the landform itself that has been inspired by mythological contact with the Dreaming.... Tribal land then became a living entity insofar as it contributed to the overall sustenance of life. What transpired from this unique relationship was that the land needed the active cooperation of man in order to fulfill itself as a cosmic principle, in the same way that man needed the land to realize his own cosmogenic self.’

These beliefs fit well with Quantum mechanic's understanding of reality, particularly in the way that the observer fulfils a vital part in the workings of the universe. Paul Davies, Professor of Theoretical Physics at the University of Newcastle upon Tyne, states in his book *Other Worlds, Space, Superspace and the Quantum Universe*, the following:

‘These studies show that reality, inasmuch as it has any meaning at all, is not a property of the external world on its own but is intimately bound up with our perception of the world - our presence as conscious observers. Perhaps more than anything else this conclusion carries the greatest significance of the quantum revolution, for unlike all the previous scientific revolutions, which have successively demoted mankind from the centre of creation to the role of mere spectator of the cosmic drama, quantum theory reinstates the observer at the centre of the stage.

Indeed, some prominent scientists have even gone so far as to claim that quantum theory has solved the riddle of the mind and its relation to the material world, asserting that the entry of information into the consciousness of the observer is the fundamental step in the establishment of reality. Taken to its extreme, this idea implies that the universe only achieves a concrete existence as a result of this perception - it is created by its own inhabitants!’

So, it looks as though the Aboriginal people and their religious understanding of the Dreaming were correct. Cowan continues:

‘So complete and so final was the Dreaming event that there was no necessity to look upon the natural world as being in any need of re-arrangement. It was, as far as Aborigines were concerned, a sacred world and therefore perfect. To recognize in a landscape through ritual enactment and imaginable perception the presence of numen is the means by which the Dreaming can be manifest... outside time. Such a mode of intellection is uniquely Aboriginal; and it is this people's greatest contribution to their own survival throughout the passage of untold millennia.....The metaphysical landscape, then, is transformed into an ideal landscape, a hagiographic history of the people's origins, their struggle to survive, how and from whom they received their cultural gifts such as the ability to dance, sing songs, make spears, and hunt during that timeless moment known as the Dreaming. It is timeless because these primordial events took place both in the far distant past before even their ancestors had appeared on earth - and are continuing to occur even as they are making their Dream Journey in the present.

It was the Aborigine's understanding of space, his ability to establish for himself a sense of "place", while in a state of wandering, that gave him his unique human and spiritual dimension. Unlike the sederunt - that is, the person conditioned to living in one place - the Aborigine lives within the realm of "the swift-perishing, never-to-be-repeated moment". Over the countless millennia, he has learnt to glory in these fleeting moments and the presence of the eternal that lies within the harmonious interplay of daily impressions and experiences. Thus, we are confronted with a perception of space that is non-architectural, non-mathematical, and indeed non-material when it is detached from the actuality of the land itself.

The Aborigine's relationship to the space that he occupies is reflected in his actions. Since his space is not constricted by numbers nor by the idea of time, he is able to adopt an entirely different posture, both at an intellectual and physical level. When he is in a state of repose or when he is engaged in action, his body is perfectly adapted to spaciousness. Unlike the sederunt, the nomad carries his whole world within himself.

The Aboriginal nomad, because of his desire to move about his country (whether for nourishment or ritual purposes), has chosen a minimalist life-style. His cherished beliefs, the methods and symbols by which he gives these expressions - all of them he carries about with him, not as artifacts but as ideas. In this sense, the Aboriginal nomad is the complete intellectual. This interrelationship between man and earth, between the need to wander through space in search of spiritual fulfillment and the desire to give cultural form to this pilgrimage, is at the very heart of the Aboriginal perspective.

The modern mind cannot comprehend how much joy and universal wellbeing is unleashed upon an environment in the very act of celebrating the relationship between Aboriginal man and the Dreaming. This is a landscape in which everything is transfigured by that light of glory the soul projects onto it. As a nomadic people, the Aborigines project most of their inner beliefs onto their tribal landscape, since they are not able to construct edifices to reflect their metaphysical ideals.

The earth becomes the manifestation of a vision, of a visionary geography, in which the soul can meet and converse with its maker by way of symbolic and ritual expression. This in turn means that the Aboriginal hierophant must mentally reconstitute the Dreaming here on earth if he wishes to attain to a level of consciousness that allows him access to the Dreaming condition. Aborigines are proud exemplars of an ancient race who have allowed religion, and religious beliefs, to saturate their lives. Indeed, few other cultures in the history of mankind have so successfully integrated their religious belief with the normal activities of their lives as these people.'

It may well be that there is no higher frequency domain or spiritual realm, no afterlife or heaven, no higher aspirations that we may aspire to. Just a material world for us to plunder and so temporarily increase our standard of living before our resource base collapses and sends us extinct like any other population of animals. That is certainly the path that much of the world's population are presently on.

However, we do notice that the more affluent we become, the more material possessions we lay claim to, the more decadent and bored, drug dependant and spoiled, violent and apathetic, selfish and greedy much of the population becomes. And to counter this a great number of people turn to all manner of religions and therapies to turn their lives around and search again for the invigorating mysteries that help to give life extra purpose. Perhaps we should take note of what our oldest surviving culture is trying to tell us. James Cowan states it excellently when he says:

'The Aboriginal is not an ancient individual, the remnant of some pre-historic race as many commentators have assumed in the past. Rather he is a man of culture, someone who never strays far from his origins.... The Dreaming occurred and is still occurring. As a metaphysical condition it transcends time, casting its glow on all men (and women), in all places at the one time, living or dead. Its spiritual dimension is so extensive that it can displace the material contingency of the here-and-now with a pervasive order. At this point the truly mysterious object of the Dreaming lies beyond all apprehension or comprehension, not only because knowledge has certain immovable limits, but because in it one comes upon something inherently "wholly other" before which an Aborigine - as do we all - recoil in wonder.

The essential core of their spirituality is remarkably consistent throughout the country, despite the

tribal isolation that has made communication so difficult in the past. In this respect, one is constantly struck by the similarities existing in mythic data and ritual practice, even though there might be contrasts in surface nuance.

Recognizing the Dreaming as a living entity, however, demands a fundamental shift in the attitudes of everyone concerned. It requires, firstly, that the Dreaming is seen for what it is: a metaphysical statement about the origins of mankind as a spiritual being. So long as the Dreaming is regarded merely as an assortment of myths that have little more than a quixotic value for the rest of Australians (and the rest of the world), then the Dreaming will always be demeaned as a metaphysical event.

Men and women of goodwill, both European and Aboriginal (and all other races), must begin to regard the mysteries of the Dreaming as being important in their own lives in the here-and-now. They must see the Dreaming as a spiritual condition, rather than simply as a word denoting the creation-time of Aborigines. Indeed, the idea that the Dreaming is an on-going metaphysical, rather than an historical event is the only way that this change can be brought about. The Dreaming might become a sustaining metaphysical principle for all Australians (and for the rest of the world).

Every religion and every world-view is entitled to be judged, not by the levels to which it is flattened, or coarsened, but by the summits and pinnacles to which it aspires. There is no reason why the Dreaming cannot be renewed in the context of contemporary Australian (or global) society.... But it does involve a collective acknowledgement that the land has a sacred dimension rather than a physical one only. Just so long as we are intent on pacifying the landscape and, in a sense, taming it so that its spirit is broken, then we will destroy any hope of the Dreaming as a metaphysical event ever becoming a reality again.

A land that remains wild is a land that remains mysterious. Aborigines have always been extremely aware of the power of this mystery, this numen, as a regenerative force for good among men. They know, or have known, that once a land is pacified it loses its power to heal not only itself, but men as well. A land yearns for its freedom just as men do. The Aborigines teach us that by making it a slave to our will, we destroy its ability to challenge us as a friend and colleague.

Aborigines who maintain a deep, reverential contact with the Dreaming are true Doctors of the Spirit. It is they who understand the power of land as a principle force and teach us how to respect it. They are true environmentalists who have carried on a tradition of husbandry for countless millennia. For them, true imagination is the power to see subtle processes of nature and their angelic prototypes in the form of spirits of the Dreaming. It is this capacity to reproduce in themselves the cosmogenic unfolding, the permanent creation of the world in the sense in which all creation, finally, is only a Divine Imagination that makes Aborigines so unique.

The challenge now is to translate this knowledge into some form of action and some form of acknowledgement of the Aboriginal heritage. Granting land rights is only an initial step. It does not solve the problem of a renewal of the Dreaming. This can only come about in the form of a commitment to a new level of understanding and respect for Aboriginal traditions and their age-old spirituality.

For this to happen, modern man must re-examine his own attitude towards his abhorrence of instinct and the power of the numen as a physical exemplar. He must learn to accept the land on which he lives as an extension to himself, not as a separate entity that should simply be utilized for material gain. He must go beyond what Christopher Bamford calls 'the idea of a single, unique act of creation and assume a creative state of continuous and recurrent creation as well, metaphysical in nature, outside space and time'. When, and if, this happens, we will then begin to see a rebirth of the Dreaming as an extension to our own spirituality.

The Dreaming still exists. The pure asceticism of nature as an attainable condition within every one of us is possible if we listen to what the Aborigine is saying to us. Re-establishing our links with totems, making our own Dream Journeys, listening to the voice of our own Dreaming and acknowledging our ancestors as being primordially present, is the beginning of the process of renewal. When that is achieved, then the revival of the Dreaming as a metaphysical condition will be a reality.'

Now we must ask ourselves "is there any physical proof that there is a metaphysical side to nature?" To answer this, we must look at our own physical world for clues about subtle and generally imperceptible phenomena that are very real indeed. We are certainly very aware of any material object around us. What about the energy that is essential for our daily life and awareness? We can see light and feel warmth, but an electrical current is invisible to us until it builds up to produce a spark or until we developed machinery such as oscilloscopes.

Is there anything in our study of the universe that suggests that 50% of reality is missing and that could give us a clue to the metaphysical side to nature? Well, in fact, there is! When radioactive compounds emit beta rays, scientists have only ever observed left-handed particles. Particles that make up the universe are either left-handed or right-handed, and interactions in Nature occur irrespective of which way they point. Nature seems to be perfectly symmetrical. With one exception: beta decay radiation. All the interactions in Nature are perfectly symmetrical except for beta radiation.

Electron neutrinos are fundamental particles created by the nuclear furnace deep inside the Sun, a byproduct of nuclear fusion that powers it. Muon neutrinos are created when cosmic rays from space bombard the Earth's atmosphere, generating a shower of particles. Even more powerful cosmic rays generate tau neutrinos. Because of their small size an estimated 640 trillion neutrinos fly straight through the Earth every day without touching anything.

A small percentage do collide with normal electrons, generating a flash that can be detected in purpose-built huge underground cavities filled with heavy water and surrounded by detectors that record these sporadic collisions. However, these detectors always get the same result: only half of the electron neutrinos arrive from the Sun. Scientists have only detected half the number of neutrinos they expected. The other half, it seems, are disappearing.

This 50% figure is interesting because there is another experimental anomaly involving the muon type neutrino, which also indicates a 50% deficit. First, the neutrinos are apparently disappearing and secondly that the rate of disappearance is 50% in both cases. Professor Ray Volkas and Dr Robert Foot, from the School of Physics at the University of Melbourne, have been working on this symmetry problem and believe that they may have the answer. They propose that there's a new kind of matter out there, one we can't see or touch, identical but opposite, 'mirror matter'. Neutrinos are the key.

Mirror matter is neutrino oscillation, where an ordinary neutrino transforms into a mirror neutrino. Then you have symmetry between left and right. However, the problem is, you also create a new range of particles no-one has ever seen before. You double the number of particles in the universe: double photons, electrons, protons, all a mirror of each other.

Ordinary neutrino is constantly transforming, or oscillating, into a mirror neutrino, which is a state we cannot detect. Once the particles change into the mirror state, they would be undetectable with existing technology. This might explain the neutrino problem. When these fundamental universal particles oscillate back into a state where it is entirely an ordinary neutrino, we can detect it again.

That means that when we try to detect these neutrinos on the Earth, we see 50% of the neutrinos we expect see, because it is a 50% mixture of an ordinary one and a mirror one. If the theory is correct, it would explain why it is always 50% of neutrinos from the Sun that are detected, and why the shortfall from cosmic rays is also always exactly 50%.

It would mean that there is a whole lot more matter in the universe than we ever imagined. 'Mirror matter' is a strange type of matter that cannot be seen and cannot be affected by any force in the 'real' universe, except gravity. There could be mirror worlds and mirror stars we cannot see. Scientists know that 90% of the universe is missing. They can detect its gravitational effect, but they just cannot see it. They had thought it was made up of dark matter. Perhaps, though it is not so much 'dark' as 'invisible'. Perhaps it is 'mirror matter'.

Mirror matter might also explain why astronomers keep finding massive planets orbiting too close to other stars. Astronomers cannot see the planet; they just detect a wobble in the star and work out its orbit. However, the planets are so close that they should have been dragged into the star by the friction of the thin solar atmosphere. If they are made of mirror matter, their gravity will make the star wobble, but these ghostly planets will not be affected by friction.

Prof Ray Volkas states 'We would argue that the theory is actually not much more complicated than the conventional standard model, and nicer because it treats left and right on an equal footing and can potentially solve some of these cosmological problems.'

If Ray Volkas and Robert Foot are right, it will mean a revolution in physics and it will redefine our perceptions of the universe. It sounds like we may have discovered the metaphysical side to Nature and a brilliant British scientist has now invented a way of observing it.

Until we began tinkering with scientific experiments, we were unaware of the electro-magnetic spectrum that is responsible for the many forms of reality. Until recently, we were not able to observe the energy permeating every millimeter of every living plant or animal and yet this invisible force is surging throughout your body as it is with every other life form. However, with our increasing development of technological tools, for example Kirlian electronography, we can observe this energy. The Kirlian camera takes pictures, which show the energy coming out of whatever is being photographed.

Photographs are now be taken showing this energetic or, dare we say, spiritual aura radiating from every part of the human body, or from any other living organism. What is even more remarkable is that if one slices a section from an organism, say a leaf for instance, Kirlian photography shows that although the section has been removed, the ghostly imprint of the leaf's energy field remains in all perfection for some period. The energy of that plant is still surging through the still remembered pathways of the now missing section of the leaf. In other words, plants, like animals, including humans, also have ghosts, spiritual energetic bodies that survive the destruction of the material body.

The energetic body of the leaf does not instantly dissipate with the removal of the leaf section but, in fact, remains. If this is true for a leaf, what does that imply for the rest of reality? If one loses a part of one's body, say a finger or toe, an arm or a leg, does the energetic body of the digit or the limb remain, and is that the reason why people can generally feel their missing limb as if it was still there?

Dr Harry Oldfield was particularly interested in Kirlian electronography and eventually built a Kirlian gun, a biological sonar device that beams and focuses harmless high-energy, high-frequency radio signals into people to induce harmonic resonance and then listens to the response in order to

detect disease. The patient's body responds with radio signals of a special kind if disease is present. This was a medical first in that it seemed to be able to accurately detect force-fields of energy around people and obtain pertinent diagnostic information. This invention was then used to detect cancer and other diseases in several London hospitals.

The Kirlian gun is like a tuning fork and just as a string of the same note on a piano will start to vibrate in harmonious resonance with a tuning fork, even though they are not physically touching, so the human body vibrates in harmonic resonance with the Kirlian gun. To understand this scanning technique, one has to understand electromagnetism, resonance and fields.

James Clerk Maxwell's unified theory of electromagnetism enabled electricity, magnetism and light to be understood mathematically in the 1860s. Any flow of electrons sets up a combined electric and magnetic field around the current, which affects other electrons nearby. Electric and magnetic fields travel in three dimensions, like rippling waves, at 90 degrees to each other and exert a force that does not need a physical medium in which to exert itself, known as electromagnetic resonance.

Heinrich Hertz discovered radio waves in 1888 and the vibratory rate of electromagnetic radiation was named after him – the Hertz or cycle per second. The universe is a sea of invisible electromagnetic radiation, cosmic rays, gamma rays, X-rays, radio waves and a small part of this spectrum is visible to us as light. It is the complex interaction of electromagnetic fields that has created the natural world.

Dr Harry Oldfield thought that the fields produced by the human body might indicate things that are going on in the physical cells and wanted a way to measure what was happening to them. He learnt that the measurements also gave him information about the mental and emotional state of the person. In Jane and Grant Solomon's book, *Harry Oldfield's Invisible Universe*, (Campion, 1998), Dr Harry Oldfield described these human-produced electromagnetic fields as follows: 'This field can be imagined as an electric atmosphere, a human weather system in which an invisible wind blows over the surface of the skin. Where physical tissues were under-functioning, they would suck the wind in, causing a concave dent in the field and a lower than normal reading would be obtained in the area of the problem.

I observed that where physical tissues were over- functioning, they would produce a gust in the wind, with storm-like turbulence in the presence of rapidly dividing cancer cells, causing a convex bump in the field and a higher than normal reading would be obtained in the area of the problem. To continue with this human weather system analogy, there could also be what we might call whirlwinds, ozone leaks, jet streams, clouds and even lightning in this body atmosphere.'

There has been several researchers such as Professor Harold Saxon Burr, Dr Robert Becker, Dr Carruthers and Dr Rupert Sheldrake who believed that this human electromagnetic field existed and these scientists had suggested the names bioelectricity, L-fields, body electricity, organizing fields of life and morphic resonance. Harry thought that the term 'radiated morphogenetic field' best described the energy field phenomena. 'Morphogenetic' means 'the origin of form', 'the organizing blueprint', the 'design behind the structure'. A radiated morphogenetic field refers to a field that is constantly referencing with the brain. Harry also believes that the brain is not only transceiving information in this space-time continuum but is also a quantum mechanical device, which is constantly communicating with other realms of reality.

Harry replaced the Kirlian gun with an electro-scanning method (ESM) by using an electro-generating machine that uses sound and radio frequencies, which are beamed into the body. This excites every cell in the body so that they vibrate slightly and as the signals bounce back out, they can then be quantitatively measured to see if they were giving off healthy normal signals. If they give off unexpected abnormal signals, that shows that there is a health problem and that treatment is

needed. He also discovered that by exciting the energy field and the cells with ‘controlled vibrations’ he could put unhealthy cells back into their normal healthy state of vibration.

Dr Harry Oldfield then went on to invent polycontrast interference photography (PIP) using a video camera and computer to measure light that enters the energy field from the environment, interacts with the field on a very subtle level and bounces back off into the environment again. PIP is designed to get diagnostic semi-qualitative information from this ambient light and human energy field interaction. The energies of the different parts of the body are represented on the PIP scanner in different colours and patterns according to the health of each organ and body part.

Harry discovered that his invention showed exactly what was going on in the energy body and how it sustains the physical body. On the computer screen patterns of blue, green and yellow clearly show seven major energy centres, known in ancient Indian Ayurvedic medicine as chakras, drawing in energy from the universal energy field. This is then distributed via the meridians or channels of the energy body to the cells of the physical body, visible as red and magenta lines across the person’s anatomy.

Harry believes that the chakras are related to the endocrine glands, which regulate the body by sending chemical messages called hormones to different parts of the body. Harry says: ‘We see the chakras as the energetic assembly points for these major organ centres and when there is a problem with the blueprint the physical structure suffers. Our main work is energy restructuring. We are like a general energy-medicine practice and we can help with anything that effects the mind-body interrelationship because we work on the causal energy field, which is the causative factor of the energy patterns of the body’

A medical herbalist, Mrs. Anne Warren-Davies suggested that Harry use his Kirlian equipment to look at crystals, which he expected would give off very little energy, and was surprised to find that his machine proved that crystals amplify energy. Harry says: ‘They also transducer energy, which means that they change one type of energy into another. If you stimulate them with electricity you produce mechanical energy and they vibrate, they produce electrical energy. This is called the “piezoelectric” property of crystals.’

Harry had heard that crystals had been used in natural healing for thousands of years and experimented by putting a small electrical field through the crystals and examined their energy field with his Kirlian camera. Harry says: ‘The crystals gave off enormous amounts of energy when I stimulated and measured them with Kirlian photography and other instruments. I then used the Kirlian apparatus to see the effects of the energized crystals on the human body. I studied these effects for years, comparing the effects with those of natural crystals. Then I found that by stimulating different crystals with certain compatible frequencies you could amplify each crystal’s effects. In other words, each crystal harmonically resonated with frequencies. Applying the energized crystals to the body, I found that the energy distortions I saw in ESM radio-sound scans or Kirlian images would diminish and sometimes go altogether with a consequent diminution of systems.’

Harry places a selection of small crystal chips of seven different colours in a tube with a saline solution. The current from a Tesla coil in the electro-generator travels through an insulated wire to the saline and crystal tube causing the crystals to vibrate. Harry says: ‘Vibration is a good word to describe what is actually happening. The pulses from what I called the “electro-crystal” generator causes the crystals to expand and contract very rapidly as their outer ions gain and lose electrons repeatedly in the ionic Jacuzzi. The vibration induces the “secondary field effect” which basically means that it vibrates the energy field and the cells of the subject, giving the patient a tune-up in the right place with the right combination of crystals and energy. In this way we were able to mimic the healing effect of energy therapies on the body, but with two important differences.

The first was that the machine did not rely on the practitioner. It worked whoever was using it. Secondly, the machine was able to induce a very specific and precise vibration into the patient's energy field. We found that we could now target different areas of the body and the energy imbalances associated with different diseases by combining very specific normalizing frequencies with the crystal oscillators.... the electrical energy from the generator is induced into the body – but there's no actual electrical contact with the body. ..When the crystals are energizing they produce a secondary effect by induction into adjacent tissue which is also full of salty (conductive) fluids. It is these electrolytes in the body at a cellular level that get excited by the electro-crystal therapy. Later I called this a “molecular massage”.

Then Harry made his most startling discovery of all. He found that some of the crystals actually had living entities within them that showed up perfectly clearly as bright white slug-like moving objects. He had discovered for the first time ever that silicon-based life forms live within the crystals.

Dr Harry Oldfield has found that these crystal-dwelling photonic beings particularly like a quartz environment and has filmed these beings moving around on top of crystals and darting in and out of them. They will move off the crystal and onto the hand of people who own and use crystals for healing and can be felt but only observed with the polycontrast interference photography. While videoing a white photonic being that was moving around on top of the crystal, he also accidentally filmed his cat walk into the room and begin watching the silicon-based life form. Not only was the cat able to observe the living crystal entity with the use of PIP, the entity was fully aware of the cat and darted back into the crystal in fear of the predator.

In the past crystals and gems were believed to have mysterious powers and Paracelsus, a well-known mystic and physician in the sixteenth century, claimed that his talismanic jewel had a spirit attached whom he called Azoth. One of humanity's most ancient religions, Animism, is based on the belief that spirits and energies inhabit and animate rocks and trees. Harry's PIP has proven that this is correct at least as far as crystals are concerned.

In *the Curious Lore of Precious Stones* (Lippincott, 1913) George Frederick Kunz tells us that: 'The moonstone, the star sapphire and the cat's eye are all gems which possess a moving light, a moving line or three crossed lines, and they are believed by the Orientals to be gems of good luck. Indeed, it is supposed in the East that a living spirit dwells with these stones, a spirit potent for good.'

The latest discoveries that Dr Harry Oldfield has made is that his PIP can also clearly detect and photograph ghosts and other entities from the metaphysical side of nature. He has been able to photograph families in their home and sometimes standing amongst them is a clearly identifiable deceased relative. A particularly remarkable image that he has captured in a mortuary is a 'soul-collector' or Angel, a bearded priest-like figure wearing a bishop's mitre hat and carrying a staff in his right hand with a cross on the top of it. It has a vortex of energy emanating from its mouth.

He has captured images of a whole family, grandparents, parents and children and the furniture that they lived with, who all died 300 years ago from the Plague and who still inhabit the same house with the present family. He has captured images of the ghosts of American Civil War soldiers on old battle-fields. Harry has captured images of long demolished mausoleums in cemeteries complete with the ghost of the person that was buried there. From his photographs and videos, it looks as if everything remains in the metaphysical side of nature even after it has died or been demolished in the physical side. It looks like Harry has discovered the method of filming mirror matter.

Finally, he has also been able to capture cloaked extraterrestrial ships and the aliens themselves, as they go about their business in our midst, completely unobserved and unexpected. Dr Harry Oldfield has succeeded in proving that extraterrestrial beings do indeed exist and operate alongside us.

All this evidence proves that the universe is a conscious entity and humanity represents a part of the awakening of the planetary mind. Reality is not the simple physical construct that we in the Western world have long thought it was. The tribal people, the Aboriginal people, the shamans, and animists have been correct all along. We do indeed exist in a sacred intelligent landscape. Now that we are awakening to the true reality of life, we are also at the threshold of utterly destroying the planetary mind.

We now know that when the body of a human or any entity is destroyed it continues to exist in its energetic or spiritual form and this is the explanation behind ghosts and hauntings. Now we must ask ourselves some questions. If one cuts down a tree, does its energetic or spiritual form remain standing there invisibly? If one destroys the whole forest, does it continue to exist in its spiritual form? If we destroy our entire living world, does it continue to exist in its spiritual form?

Perhaps it does, for a while, but perhaps it may also be unlikely to last for any long period of time as only half of its existence remains intact. The material realm, given less significance by many religions, may in fact be of equal importance. Could it be that the material world of form and function; the evolution of greater complexity, and thus the development of intelligent consciousness directly nurtures the spiritual realm?

We regularly hear or read about the destruction of the environment. The forests, the natural covering of the planet's terrestrial surface, the cradle of evolving life, containing some of the greatest complexities of conscious development, and the powerhouse of the planet, are being destroyed so rapidly that they may be gone forever within twenty years. We also hear that humanity may also go with them, and perhaps all advanced forms of life, as the planet goes into total ecological collapse. Could this be quickly followed by the collapse of the spiritual realm?

If one is seriously faithful, at this time in our history, it may not be good enough to just sit about and pray, meditate or chant. Trying to save one's own soul while the essential spirit of the entire planet withers and dies may be self-defeating. If the living planet is being killed by humans, then only the immediate actions of caring humans may save it.

Most people, of course, are not particularly aware of the appalling death, and destruction that is increasing ever more rapidly across the entire surface of the globe. People are generally trying to live their lives as best as they can. Many have noticed that the air is full of filth, that the rain tastes slightly acidic, that the rivers and oceans are discoloured, that the fishing is poor, that the forests of giant trees are gone, that the birds and animals have mostly disappeared and that everyone is becoming more and more riddled with cancer. Yet most are still vainly trying to increase their standard of living, their prestige, their power and the size of their families. All at the expense of an already rapidly dying environment.

In the greatly developed western world much of the natural environment is already dead and only survives in some remote rural areas and in minute remnants preserved as national parks. Even these areas are constantly under threat from human population growth, excessive numbers of visitors trying to commune with the last traces of nature, pollution, logging, mining, land development and longer term affects such as ultra violet radiation damage from the thinning of the protective ozone layer, global warming and acid rain. Because most of these remnants are not connected to others with wildlife corridors, inbreeding of the native species and their inability to migrate as the world global weather patterns change may mean that most face looming extinction.

Most people believe that we can cover the entire planet with mighty cities and still not affect the human environment to any noticeable degree. They have forgotten that only a few short years ago, across most of the planet, the air and water was crystal clean, the fishing excellent, the forests vast and healthy, cancers and heart problems almost unknown and the whole world alive and vibrant. People living in the urban environments often believe that even though natural things are in short supply there, in the country, in remoter areas, all will be well. However, in those remote areas, in both developed and undeveloped countries, the very last of the essential planetary life support systems, the remaining wilderness areas of paradise forests are right now being utterly destroyed.

Perhaps the greatest danger to most human populations is the increasing carbon dioxide content of the atmosphere, which is now 30 % higher than it was at the turn of the century and increasing rapidly with the ever-greater burning of fuels and the cutting down and burning of forests. The increased carbon dioxide is causing a global temperature increase known as the greenhouse effect, where the gas molecules prevent the sun's heat from being reflected into space. That is causing gradual changes in the climate, sea level, and rainfall, which will devastate many essential agricultural areas and river and coastal communities where much of our civilization and industry exist.

Fortunately, the oceans are the world's largest absorbers of excess carbon dioxide but that is still not enough to stop the climate from changing and the sea levels from rising. Only the last of our undisturbed rainforests have the capacity to ultimately preserve us from ourselves. Scientists working in Brazil have recently found the first proof that virgin forests soak up huge amounts of the carbon dioxide produced by people burning fuels. The measurements, published in the November 1995 issue of the international journal *Science*, showed that the south-west portion of the Amazon rainforest absorbs one ton of carbon dioxide per every hectare of rainforest every year.

‘Extend the team's measurements globally and the world's remaining tracts of tropical rainforests could be absorbing a billion tonnes of carbon dioxide every year - fully one-sixth of the amount produced annually by people burning fuels,’ stated Mr. Pieter Tans of the National Oceanic and Atmospheric Administration. ‘It is a pretty important finding, its clear the forests are helping us balance the greenhouse effect.’

Unfortunately, these essential forests are being logged, clear-felled and burnt all over the world. If the forests go, the environment goes, the climate goes, and humanity goes. We are about to experience the destruction of everything that we have ever worked for. If more people do not start to actively fight to conserve and preserve the essential natural environment with its full complement of biodiversity, all our praying, meditating and chanting may be little more than a waste of time. It must be a fact that if, before present reality, only God existed and created reality, then creation is God and God is creation. An attack then on any part of creation, the destruction of any natural part of this living world, is a direct attack on God.

If Kirilan photography can show us the ghost of a dismembered leaf perhaps an advanced form of technology will eventually bring us to that long awaited "Judgement Day". If the ghosts of the dead do indeed dwell directly amongst us in a correlated frequency domain and if we developed the ability to tune into that frequency, heaven and hell may suddenly become perfectly transparent to all of us. The dead would indeed have risen from the grave and we would have to live our lives face to face with the direct consequences of our actions especially if we had been in any way responsible for the death of those that would now visibly haunt us. It really would be "on earth as it is in heaven!"

We must remember that these ideas that we have been examining, the human electromagnetic field or radiated morphogenetic field and its metaphysical nature are not operating in isolation but

are a part of the entire Global Mind and consequently a part of the Universal Mind. Both the physical and the metaphysical sides of nature are directly integrated and composed entirely of energy. Could this energy, particularly our thoughts and intentions alter the world before they become actions?

This is a notion that has influenced esoteric thought for centuries and now forms the basis of a continuing parapsychology experiment, the Global Consciousness Project that is being conducted by Dr Roger Nelson of Princeton Engineering Anomalies Research. For over 20 years, researchers at this leading parapsychology institute have been studying the effects of human consciousness on Random Event Generators (REGs), demonstrating to their satisfaction that individual minds can subtly influence random mechanical processes and create deviations from expected chance results. Nelson examined what happened to a REG when several people focused on a single event, at a theatre or sports stadium.

During an electroencephalogram (EEG), electrodes detect electrical signals transmitted between brain cells and record patterns of activity. This is not a measure of the mind itself but is a measure of the electrical processes that somehow generate consciousness. Now, imagine the Earth as a brain with humans and perhaps all life as brain cells and a network of Random Event Generators as electrodes. Begun in 1998, it now involves more than 75 networked computers known as "electrogaigrams" (Eggs) in about 30 countries, including the US, UK, Russia, Fiji, Cuba and Romania and they appears to be measuring something.

The results are impressive but, perplexingly, the generator's location was irrelevant because the effects were present anywhere. Random Event Generators in America, for instance, were noticeably affected by Princess Diana's funeral in 1997. Nelson's team claims that periods of widespread attention or concentration correspond to notable fluctuations in the Electrogaigrams network's data.

For example, significant results were recorded after the Turkish earthquakes of August 1999, the millennium eve, the 2000 US presidential elections, and September 11, 2001, when the Global Consciousness Project network responded, as Dr Roger Nelson says, 'in a powerful and evocative way.' The GCP team remains cautious about interpreting its results. But the implications are startling and, as the Egg network grows, so too does the enigma surround its data.

So, there we have it, scientific research is continuing to prove that humanity is much more than just a population of people fighting for survival on the thin crust of a molten ball of rock. We now know that we really are a part of universal consciousness, though just an atom of it when compared to the size of the universe. However, unlike most of the observable universe, we are generating complex, evolving multi-dimensional consciousness that appears to be drawing in other inquisitive minds. Hopefully, by classifying these extraterrestrials, we may encourage them to make contact and perhaps even help us to create a sustainable future and to further understand the universal environment of which we are a part.

There is still a lot to understand. Ninety five percent of the universe is filled with small mysterious voids and only five percent is filled with galaxy clusters. It is about 13 billion years old, but it would take forty two billion year to reach its edge at the cosmic horizon. Within it, in the constellation Eridanus, there is an enormous hole nearly a billion light years across.

This giant void was first detected in 2004 when NASA's WMAP satellite made the most detailed measurements of the temperature of the cosmic background radiation, which is the afterglow of the big bang when the universe exploded into reality. The Sloan Digital Sky Survey, the largest 3D map of galaxies made so far, also mapped this enormous cold void eight billion light years

away from us. Such a large void, with temperatures 20 to 45 per cent lower than the average for the rest of the sky, is impossible to explain within standard cosmology where everything was created by a roiling vacuum of quantum fluctuations magnified by a period of superfast expansion called inflation.

Laura Mersini-Houghton and her colleagues of the University of North Carolina at Chapel Hill have studied the phenomena and have produced an explanation based on String theory, the leading contender for a “theory of everything” that unites the laws of physics to explain how all matter and energy behaves. The theory holds that the ultimate building blocks of matter, such as quarks and leptons, are tiny strings of mass-energy vibrating in a ten-dimensional space-time.

String theory describes not one but many universes. In fact, so many universes that it is ten with five hundred zeros after it, each one a quantum vacuum with different physical properties. Laura Mersini-Houghton and her collaborator, Richard Holman of Carnegie Mellon University in Pittsburgh, Pennsylvania believed that matter and gravity have dynamic effect that reduces this vast number of vacuum universes down to just a few. This means that something must oppose gravity, which draws the mass-energy of the vacuum and shrinks it.

Einstein’s theory of gravity states that if the vacuum has an enormous negative pressure it will generate repulsive gravity that blows rather than sucks. Laura Mersini-Houghton explains it as follows: ‘A patch of vacuum’s repulsive gravity therefore overwhelms the attractive gravity of its matter. For the patch of vacuum that led to our universe, this happened during the first split second of its existence in a period called inflation.’

The dynamic effect of matter and gravity would have removed most tiny patches of string quantum vacuums and would leave the universes in an entangled state that allows them to sense and affect each other giving them a ghostly connection. ‘Such an entangled state remains for all time. So, although inflation quickly pushed our region beyond the reach of neighbouring regions, it should still retain the imprint of its quantum entanglement with its neighbours.’ Says Mersini-Houghton. The vacuums of neighbouring universes will push on our universe and the squeezing will produce repulsive gravity that will dramatically thin out matter and make it harder for galaxies to form. This is now believed to have caused the giant void.

“It is the unmistakable imprint of another universe beyond the edge of our own” says Laura Mersini-Houghton.

However, we must always remember, that whenever our scientists think they have a good understanding of the universe, it is very likely that there is still a great deal of basic knowledge to be learnt. The best example of this was discovered when astronomers, thinking that they now had enough data, created models of galaxies on their computers. They were then shocked to discover that these computer model galaxies flew apart because there was not enough atomic mass to hold them together.

It was back to the drawing boards and the mathematical equations and they decided that 96% more gravity was needed to explain the workings of galaxies. It was expected that as the galaxies spun around their central black holes, the centre of the galaxy would be spinning faster than the outer portions that would be dragged around at a slower speed. Further observations proved that this was not the case and that even the scattered atoms of hydrogen on the edge of the galaxy were travelling at the same speed as the centre of the galaxy.

It was finally agreed that unobservable matter and energy made up most of each galaxy and consequently, everything else in the universe and reality. We now believe the universe is composed 4% of atoms, and that 21% is an unknown or dark matter and that 75% is an unknown

or dark energy. In other words, 96% of our bodies are unobservable and undetectable.

Just as was mentioned earlier where we discovered that 90% of our actual body mass consisted of unrelated microbes that had colonised us from birth and that only 10% of us is human, we now find that only 4% of our bodies can be accounted for. Most of every human being, 96%, is undetectable. Since we and everything else in the universe is constructed entirely out of motion, or energy, operating at different frequencies, then 96% of us must be operating or vibrating in a dimension that we are unfamiliar with.

Our body and conscious minds are only vibrating at 4% of our actual reality in this third dimension of length, breadth and height at a frequency of the speed of light. Most of our reality, 96%, is vibrating in another dimension, beyond the speed of light and consequently, it is undetectable by our senses. We thought that we had it all worked out, but then we looked closer and found that we still have a long way to go.

Chapter 11 Extraterrestrial Contact & the Universal Ecosystem

During Christmas 1964 in the United Kingdom, Warminster postmaster Roger Rump, was awoken by a loud shockwave, as was Rachel Attwell, wife of a fighter pilot, who ran to the bedroom window and saw out in the night sky, a hanging, shining object “similar to a flying railway carriage in which all the windows were illuminated”. On 29 August 1965, Gordon Faulkner, a young factory worker, obtained a clear photo of a disc-shaped, metallic craft, which was published in the *Daily Mirror*. Arthur Shuttlewood, editor of the *Warminster Journal*, saw from his office window “a large, cigar-shaped object, shining white and amber-coloured, which crossed the sky majestically from right to left” and he, also photographed it.

Printing an article in his paper resulted in 200 local people reporting that, they too had observed this ‘thing from Warminster’. Two Londoners, Steve Evans and Roy Fisher, camped atop nearby Cradle Hill in 1971, were startled by a strange sound. Evans stated that “A force-field seemed to pass like a snake through the grass. It rustled loudly, like static. It raced straight towards Roy’s feet, but then suddenly turned right. The sheep on the pasture went to pieces. At daybreak we found flatly pushed down grass, as if something had landed.”

Thus, began one of the most remarkable phenomena ever experienced by humans across the planet. The beginnings of the crop circle phenomena are lost in time though the first recently recorded were two circles on top of Pepperbox Hill near Salisbury in 1946. Single small crop circles were found at Warminster in 1972 and another on a farm near Winchester in 1975. The first known grouping of circles occurred at Headbourne in 1978 and then three circles were found at Westbury in 1980. Meteorologist Dr Terence Meaden studied one at Westbury and published in the *Journal of Meteorology* that they were evidence for a rare kind of vortex wind.

Pat Delgado, a retired electro-mechanical engineer, who had worked as a rocket engineer for the British Air Force and for NASA, was so stunned to come across a set of three crop circles in 1981 at the Devil’s Punchbowl that he decided to inform the newspapers. A decade after the first crop circles were discovered the rest of the world finally heard about them and they made the headlines in many newspapers.

When Colin Andrews, chief electrical engineer at Test Valley Borough Council, saw a group of five circles in late summer in 1983 at the Devil’s Punchbowl, created by spirals in the wheat, he realised that no human could have formed them. Being a practical engineer, he understood that it was too symmetrical and too accurately formed to have been created by people and there were no tracks leading to the circles.

The first person to photograph crop circles from the air was the pilot Busty Taylor who discovered five circles on 3rd August 1985 at Clatford. Delgado, Andrews and Taylor became the first research team to study this remarkable new phenomenon.

In 1986 a dozen circles were found including one in an oil-seed rape field and the easily snapped brittle stems were not broken but gently pressed to the ground. In 1987 forty circles were found in Wiltshire and Hampshire with a great increase in diversity and complexity of the designs. They appeared overnight, usually without eye-witnesses and generally within the immediate vicinity of prehistoric sites between late May and September when the crops had reached mature heights. The extraordinary diversity of patterns was often completed on subsequent nights and new circles were created adjacent older circles.

George Wingfield, who studied stellar spectra and the Earth’s magnetism at the Royal Observatory at Greenwich, began studying them in 1987. He described their characteristics to include the facts that the circles and associated elliptical, rectangular and triangular geometrical

shapes ranged from 1.5 to 60 m (1.6 to 66 yards) in diameter with lengths of 14 to 200m (15 to 220 yards) long. The stems of wheat, barley, rape, rye, oats and grass were found to be bent, and interwoven and they continued to grow in their new horizontal position. The stems were laid down in different layers often on top of one another in clockwise and counter-clockwise directions with geometric precision.

UFO were sometimes sighted before a circle's formation and 5kHz buzzing and trilling noises were recorded within the circles. Some circle researchers put forward theories and an intelligent reaction to their communications occurred when new circles formed in an apparent attempt to communicate. George Wingfield concluded that the circles "were the product of a non-human intelligence whose nature we still have to investigate, as far as we can do that".

In 1988 about 120 circles were found and the next year Colin Andrews and Pat Delgado published their *Circular Evidence* book which made it to the 10th position in the British national best-sellers list and the circles now appeared across the whole country. From 1990 there began to be found gigantic, complicated patterns that were termed agriglyphs and pictograms. Dum-bells, Celtic crosses, patterns that resembled keys, insects, snails, dolphins and even a giant ancient Hebraic inscription translated as "The Creator wise and kind" appeared and were photographed from the air. A group of 19 scientists headed by Professor Ohtsuki from the Tokyo Waseda University arrived to study the phenomena.

On the 13th August 1991 an impossible pictogram was photographed in a wheat field at Ickleton near Cambridge. The *Cambridge Evening News* published a photo of it two days later and it aroused the attention of scientists and mathematicians at the University of Cambridge. They immediately recognised it as a 56m (61 yard) wide Mandelbrot Set, the first crop formation to portray a symbol unmistakable to humans.

The Mandelbrot Set is named after its discoverer, the French mathematician Benoit Mandelbrot, who taught for some years at Cambridge. An important element of Chaos Theory, a Mandelbrot Set cannot be drawn and calculated like a normal geometrical pattern, it must be built up point for point. The science magazine *New Science* stated that it was impossible to draw such a diagram without a computer, let alone form it in a wheat field.

The mathematician John Sayer wrote "The Mandelbrot symbol takes a step forward, a quantum jump away from pure schoolbook geometry. It leads us into the field of Chaos Theory, fractals, computer technology and infinity. The Ickleton formation doesn't only look vaguely like a Mandelbrot, it is a Mandelbrot, and if it means something, then it must mean everything a Mandelbrot Set means".

It means that there is a hidden order behind apparent chaos, the only stability in a world of fractals. The mathematical formulae that Mandelbrot developed can be found at every level of magnification and is the trademark of the transition from chaos to order, of Creation itself.

The Mandelbrot Set was created on the night of the 11th August when a Mrs Urwin and her son noticed a silver-blue sphere of light 10 yards away from her car at Ickleton at 1.15am. The next morning farmer Hugh Raybone noticed the pattern in his wheat field and the day after pilot Steven Cherry-Downes discovered it as he flew overhead. It was then noticed that exactly one year before to the day, on 11th August 1990, *New Science* magazine had published a letter from Martyn Hughes from Highworth, Wiltshire, that stated "With each summer, the crop circle formations become more complex. How long will it take until we see a complete Mandelbrot diagram?" Someone or something must have been paying close attention.

The Viking Orbiter in the 1970s photographed, what came to be known as the Face on Mars that created quite a controversy. Carl Sagan, the astronomer from Cornell, and a team that worked with NASA in 1974, beamed out to the stars from the major radio telescope of the United States in Arecibo, Puerto Rico, a radio message using binary code describing the Earth, the human species, and our solar system.

At Milk Hill, Chilbolton on 11th August 2001, in the same field next to Britain's major radio telescope observatory, a crop formation, different from other crop circles, appeared without being observed by the scientific & security night crew personnel. It was impossible to identify the design from anywhere nearby, being composed of a series of diamond shaped dots in circular frames. Some were closely packed together making a darker portion, because there was less flattened and more standing wheat. However, when viewed from an aircraft, the dots created a pattern of light and shadow that became a huge face. It was as if the face on Mars had been replicated on Earth.

On the night of 19th August 2001 in the same field, a rectangle of about 30 metres (100 feet) by 60 metres (200 feet) appeared. The rectangle had a border of laid-down wheat within which was a binary code created in squares of wheat using the same template as the signal sent by the Arecibo radio telescope in 1974. When compared with the original radio message it looked almost the same but on closer examination, it was discovered that there were important differences.

In the original signal sent from Earth, different levels portrayed the atomic numbers for the building blocks of carbon-based life, hydrogen, carbon, nitrogen, oxygen, and phosphorus. The molecular nucleic formula of the protein in our DNA, a graphic of the double helix in our DNA, a graphic of a human being with a small head and long legs and a graphic of the number of people, 4 billion at that time, on the earth was also included. There was a picture of our solar system where the third planet from the sun was highlighted, and at the bottom, a picture of a curved dish on a platform, the radio telescope that sent the message.

In the answering signal sent to earth and displayed as a pattern in a wheat field, there were six elements instead five. Silicon was added in its correct place in the atomic periodic table as if to say that they are partly composed of silicon. Instead of the 1.8 metre (six foot) tall human being with a small head, their signal depicted a 1.2 metre (four foot) tall extra-terrestrial being with long arms and a large head. The size of their sun was smaller and the 5th planet was highlighted. The population number of 7 billion was included instead of 4 billion and instead of a picture of the telescope, it showed a crop circle from the year 2000 that had occurred in the same field only a year earlier.

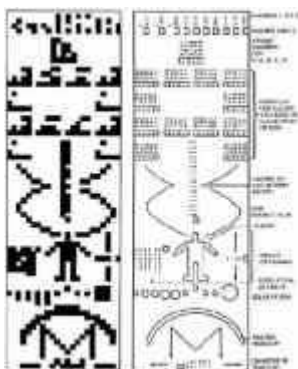


Figure 1. Right hand side original binary code signal sent from Earth.
Left hand side binary code signal sent to Earth.

On 15th August 2002 at Crabwood, 13.5 km (8 ½ miles) from Chilbolton where the Arecibo message and Face appeared beneath the radio telescope on 19th August 2001, one of the most important crop pictures was discovered on Vale Farm, Pitt, Nr Winchester, owned by Mike Burge. Traffic reporter Pippa Head, flying over her area that consists of Portsmouth, Winchester and Southampton, was the first person to see the formation from the air. Mary Hill, who lives in one of the farmhouses beyond the bottom of the field, reported that she had gone to bed about midnight and was on the verge of going to sleep, when she heard a throbbing sound which came closer and then appeared to hover, the noise continuing for 10-20 minutes. Three middle-aged women who were staying at a nearby campsite reported that during the night of Thursday 15 August, they had witnessed an amazing display of dancing lights over the field spiralling down to the ground and then back up again, before disappearing like a shooting star.

Lucy Pringle flew over the field on Friday 16 and photographed it though neither she nor the pilot could identify a coherent shape in the formation. It was only after the development and printing of the film that the amazing image was visible. It was the face of an extraterrestrial or alien with a somewhat sinister appearance.

Below the face there is a circular dish containing a spiral code that consists of binary information, the language used by NASA when trying to communicate with other intelligences and the basic language used by computers. In order to convert binary into our alphabet, a code called the ASCII (American Standard Code for Information Interchange) set was developed by the ANSI (American National Standards Institute) in the 1960's. By using the ASCII character set which consist of 128 characters, and by translating the binary digits and sequences into their decimal equivalent and then looking up them up in the ASCII character set in order to see which letters they correspond to, Paul Vigay and Eltjo Haselhoff decoded the following communication:

"Beware the bearers of FALSE gifts & their BROKEN PROMISES. Much PAIN but still time. (Damaged word). There is GOOD out there. We OPpose DECEPTION. Conduit CLOSING (BELL SOUND)".

Crop circle researcher Red Collie believed that the strange array of upper and lower case used in the wording is a hidden code and the following information comes from Red Collie's Crop Circle Connector website.

'The Crabwood crop picture contains two hidden codes, or more appropriately, two subtle and profound messages for the people of Earth. If we let each lower-case word stand for "1" (a series of 8 digits "011xxxxx" in ASCII), and let each upper-case word stand for "0" (a series of 8 digits "010xxxxx"), then that strange pattern of capitalizations may be translated quite simply into 25 binary numbers as: **11110 11001 01110 11011 11010**.

Francis Bacon described such a lower-to-upper-case code way back in Shakespearean England. He called it a "bilateral alphabet". The general technique for hiding one message inside of another is known as "steganography". The false capitalization code from Crabwood seems to be telling us about "50 years" using an ancient Mayan 52-year calendar. It appeared on the 50th anniversary of dramatic UFO encounters over Washington D.C. in 1952, when an unfriendly "grey" alien race terrified America by buzzing the White House. You can even see the grey general in charge of such operations: look at his face as it was drawn at Crabwood. He never wished to attack Earth, but just scare us a little, so that he could make a favourable deal with Eisenhower two years later.

On the night of February 20, 1954, President Eisenhower was allegedly taken to Edwards Air Force Base for a secret meeting with human-like extraterrestrials of tall, blond appearance and blue eyes. First those human-like extra-terrestrials warned us against any possible alliance

with the greys, who had just flown aggressively over Washington D.C. Then they offered to help us with our spiritual development. They required first that we dismantle our nuclear weapons, especially considering the horrific events of 1945.

Furthermore, they refused to provide any new military technologies, saying that we were spiritually unable to handle even the technologies that we already possessed! They said also that we were on a path to self-destruction, and emphasized that we must stop killing each other, and stop polluting the Earth. Nuclear disarmament was not considered to be in the best interests of the United States back in 1954, during a Cold War with Russia (or even today). So those tall, blond extra-terrestrials of spiritual demeanour were effectively spurned.

Yet a treaty was signed later with a different set of extraterrestrials called 'greys'. They had just over flown the White House and did not seemingly exhibit the same reluctance to share military technologies with us. A deal was struck that, in exchange for new military technologies, we would allow them to abduct a small number of people and harvest some livestock, so long as they provided us with a list of people abducted. That was a very uneven deal. Why did Eisenhower ever agree to such terms?

Phillip Corso from Eisenhower's National Security Council said, 'We negotiated a kind of surrender with them, so long as we couldn't fight. They dictated the terms, because they knew what we most feared was disclosure.' By 1955, it had become clear that those grey aliens had deceived Eisenhower. We got less than the technologies we had bargained for, while the number of people abducted exceeded what we had agreed to, and there was no list.

Douglas MacArthur noted in October 1955: "We speak now in strange terms of harnessing cosmic energy, and of conflict between a united human race and the sinister forces from another planet. The nations of our world will have to unite, for the next war will be an interplanetary one."

(Red Collie's Crop Circle Connector at <http://www.cropcircleconnector.com/anasazi/cropcirleresearch.html>).

Let us now look at what other crop circle researchers have discovered from their investigations. Emeritus Professor of Astronomy Gerald Hawkins studied crop circle formations and he described his discovery of Euclidean geometry and diatonic ratios present in crop circles in Science News (Feb. 1992). By using the principles of Euclidean geometry, he could prove that four theorems could be derived from the relationships among the elements in crop circles. More significantly, he discovered a fifth theorem from which he could derive the other four, which subsequently appeared as flattened barley at Litchfield, England, in 1995.

Biophysicist Dr. W.C. Levensgood undertook detailed laboratory analysis of the plants and soil within hundreds of crop circles from 1991 to 1995. His studies revealed physical and biophysical changes within the plants inside the crop circles. The stem nodes were blown open to form expulsion cavities, an effect unique to crop formations and reproduced in a lab setting through a very rapid rate of heating. Levensgood discovered alterations in plant stem node length and circumference and enlarged cell wall pit diameters in bract tissue. These were consistent with the application of intense heat as if micro-waved for a brief period and a malty fragrance within the stems suggested that they had been cooked from the inside.

Levensgood undertook infrared photographic analysis of the crop circles and discovered that the soils within the formations were dry, even though at times there had been overnight rains. He determined that the groundwater had been partly vaporized and partly absorbed by the plants, preventing them from burning. Consequently, the stems were supple enough to bend without

cracking, enabling them to be easily manipulated into precise patterns.

Another crop circle researcher, author and lecturer, Freddy Silva, has concluded that these patterns are created by sound and represents a universal language. He reports that his dissections of aerial photographs shows that what sometimes appear to be loose or random elements both within and beyond the perimeter of formations, such as small, unconnected circles or grapeshot and rectangular boxes, are placed along an invisible matrix of pentagonal and hexagonal alignments based on proportional geometry and Golden Mean ratios.

In his book *Secrets in the Fields*, 2002, in an associated article, *Music in the fields* and at his internet site, The Crop Circular at <http://www.cropcirclesecrets.org/> he writes, 'To date some 10,000 crop circles have been catalogued worldwide... plants bent an inch above soil and gently laid down in geometrically-precise patterns with no physical signs of damage, altered cellular structure and soil chemistry, discrepancies in background radiation, alteration of the local electromagnetic field, massive depletion of the watershed, and dowable, long-lasting energy patterns, not to mention measured effects on the human biological field.

Robert Lawlor wrote in *Sacred Geometry*, "Both our organs of perception and the phenomenal world we perceive, seem to be best understood as systems of pure pattern, or as geometric structures of form and proportion".

When Andrew Gladzewski carried out research into atomic patterns, plants, crystals, and harmonics in music, he concluded that atoms are harmonic resonators, proving that physical reality is governed by geometric arrays based on sound frequencies. The musical scale, constructed on the harmonics of sacred geometry, and now found within the framework of crop circles, represents the mathematical structure of the soul of the world because it embodies the essence of the universe modelled on it.

But perhaps the greatest connection linking sound to the manifestation of crop circles lies in their greatest anomaly: the permanent bending of the plants' stems. In Canada during the 1960s, laboratory experiments measured the effects of music on plants by subjecting them to different strains of tones....in the case of Hindu devotional music — and the songs of Ravi Shankar, in particular — the stems bent in excess of 60 degrees to the horizontal — perhaps the closest any human has ever come anywhere to achieving that right angle common to genuine crop circles.

Further experiments at Annamalai University applying Indian devotional song generated additional effects: the number of stomata in the experimental plants was 66 percent higher, the epidermal walls were thicker, and the palisade cells were longer and broader than control specimens, sometimes by as much as 50 percent.

Biophysical changes are known to occur in plants collected from crop circles. Tests performed since 1989 by American physicist Dr. W. C. Levengood consistently show how the energy creating crop circles can affect seed embryo and plant growth, elongate the plant's nodes, even alter the pattern of the chromosomes themselves.

But the effect extends beyond plants. Agricultural researcher George Smith found that exposing corn to sound frequencies produced a higher heat content in soil, as well as a slight burnt appearance in the plants. The effect is consistent with the slight "baking" regularly observed in crop circles, where the affected area appears noticeably drier than the rest of the field despite overnight rain; the same applies to the "slight burning" at the base of affected stalks.

Oddly enough, Smith speculated at the time that sound energy also increased molecular activity in plants — three decades before this effect was found in crop circle samples by Levengood. Since a sudden and abnormal burst of growth is also known to occur in affected plants, it was

postulated that microwave was the culprit behind the creation of crop circles. However, microwave can render biological systems sterile, and a certain dose will even kill organisms. Yet the crop circles' plants are alive and well.

After four years of experiments on regular wheat at the University of Ottawa, Mary Measures and Pearl Weinberger found accelerated growth in laboratory samples, and postulated that the sound frequency they applied had produced a resonant effect in the plants' cells, thereby affecting their metabolism. The frequency that Measures and Weinberger applied was identical to the crop circle trilling noise.

Sound as one energy source capable of creating crop circles now becomes very feasible. But what type of sound coaxes plants to bend and lie down, applying firm and gentle pressure and, given the intricacy and complexity of latter-day patterns, with a fine degree of control?

Interestingly, ultrasound can interact with physical elements to an incredible degree. It can be aimed, focused, and reflected almost like a light beam, and specific frequencies can be focused to cause certain kinds of molecules to vibrate while others nearby are left unmoved; in laboratory experiments, a flame has been extinguished by the application of such frequencies. The higher the frequency of ultrasound, the greater its ability to be directed.

This requires frequencies in the high MHz range, such as those detected in crop circles by Paul Vigay, who has undertaken experiments also to gauge discrepancies in electromagnetic frequency. Paul's empirical data shows how the level of background readings drops abruptly when he crosses the threshold of a formation. Close to the centre, readings hover in the vicinity of 260-320 MHz.

But just as crop circles have made a quantum leap in mathematical complexity over the past two years, readings have jumped to 540 MHz. Incredibly, this coincides with Jenny's experiments which show that a relationship exists between the rising complexity of cymatic geometries in proportion to the rise of dispensed frequency. In other words, the level of frequency, whether in a laboratory or a field, correlates with the increase in design intricacy.

These extremely high frequencies ally with the mind-field and have been shown to affect the state of awareness and consciousness in humans. Reports of such have been compiled from hundreds of people visiting formations, where even simple left brain functions such as counting are affected.

When tuned in the MHz range, ultrasound prevents damage to sensitive tissues, so its healing properties are used in treating muscular ailments; these conditions also are synonymous with crop circle reports, the effects being relative to the age of each formation and duration of stay for the individual involved.

Below 20 Hz, sound becomes infrasonic, and such frequencies are directly involved with biological processes. When infrasonic frequencies are combined with high pressure, permanent changes are produced in receiving materials, since the acoustic power created by infrasound is in the order of kilowatts, (which explains why long exposure in certain crop circles causes unpleasant conditions such as fatigue and nausea).

In water, infrasound creates heat, which tears apart the molecules to form vapour. In the case of plants, whose stems are filled with water, the vaporization creates a void, which collapses the area instantaneously as the energy is released. This action, called "vapour cavitation," also creates local temperature increases of hundreds of thousands of degrees for a fraction of a second.

This process also creates a hissing sound. And if you are fortunate enough to visit a crop circle

within a few hours of its appearance, you will find yourself surrounded by this hissing sound until you leave.

Since infrasound is capable of atomizing water molecules and creating a fine mist, it should be mentioned that in 1996 a farmer out harvesting his field at Etchilhampton saw what he describes as "a series of columns of mist rising like cannon shot from the field next door." Mist looks very out-of-place in a wheat field in mid-afternoon on a dry, summer's day. Yet shortly after the incident a series of thirteen circles connected by a three quarter-mile long avenue and a Sanskrit glyph appeared in the very same field.

Finally, cavitation is accompanied by a sudden spark of light called sonoluminescence, caused by the production of electrical discharges as the water/vapour is ionized. And the lower the operating frequency, the greater the effect. In a laboratory, 18 Hz has been used as the lowest safety threshold below which the pressure formed by infrasound is known to produce disruption to chromosomes.

Every summer, crop circle plants of every variety are sent blind to Dr. Levengood, and some inevitably show unmistakable disruption to their chromosomes. Yet give him samples deliberately produced by field forgers and he'll find something unusual: perfectly normal plants.

In 1967, Hans Jenny, a Swiss doctor and researcher, published *Cymatics – The Structure and Dynamics of Waves and Vibrations*. In this book, Jenny showed what happens when one takes various materials like sand, water, or iron filings, and places them on vibrating metal surfaces creating shapes and motion-patterns. Some of these patterns are nearly perfectly ordered and are stationary. Others develop in a turbulent, organic fashion, and are constantly in motion.

Jenny thought that evolution was a result of vibrations, with the vibrations of one level of organization, such as that of cells, each one unique, combining to create glands and organs and so on, each new level being a harmonic of the previous one. Jenny saw that we could heal the body with sound by understanding how different frequencies influence the genes, cells, and organs of the body.

The musical scale, constructed on the harmonics of sacred geometry, and now found within the framework of crop circles, represents the mathematical structure of the Soul of the World because it embodies the essence of the Universe. So it's no coincidence that a large percentage of crop circles can be identified with — and by — ancient cultures, who to this day honour their histories through song and music, their healing rituals performed with sound and rhythm.

Perhaps it is not by coincidence that crop circle designs mirror these intricate patterns, just as they bear an uncanny familiarity to Jenny's materializations of sound.

If sound vibrations are both encoded into and generated by crop circles, is it not possible that they, too, can arouse the individual at a spiritual level? After all, it's through music that whole human experiences are celebrated and carried from generation to generation. It is very probable that it is for this reason that the very shape of the human ear — more specifically the cochlea — is a spiral constructed according to the harmonic laws of tone, just as the same spiral forms the primary basis from which thousands of crop circles have sprung.' (Freddy Silva, *Secrets in the Fields*, 2002).

From the 1980s to the present time crop circles have increased in numbers and in complexity until they now represent the most spectacular art forms ever created upon the planet's surface. So stupendous are they that few can look upon photographs of them and not be struck by their beauty and their mystery. For they are quite literally impossible for us to create and yet they

appear regularly overnight & attract large numbers of researchers and those of the general public who are thrilled to observe such incredible works of art. The fact that their creation is an utter mystery causes most of the population to turn their backs on them and to refuse to take notice of them because it clearly proves that there are other intelligences at work in our own locality.

There is evidence in the USA Government files obtained under Freedom of Information legislation that there has been open contact between extraterrestrials and those members of the USA Government whose responsibilities include retrieval of crashed UFOs and their crew. If the information is true, then it has been kept from the general public and even from the highest government political representatives and the military. Fortunately, extraterrestrial contact appears to have also occurred with civilians and perhaps the most important was with Steven M. Greer MD, who was an emergency physician and chairman of a busy ER, and who left his career to inform humanity that we are not alone. He has written two books, the first book is entitled *Extraterrestrial Contact, The Evidence and Implications* (Crossing Point Publications, Afton, Virginia, USA, 1999)

In his second book, *Hidden Truth – Forbidden Knowledge*, Steven Greer describes his UFO and ET encounters. As a nine-year old boy playing with his friends on the streets of Charlotte, North Carolina on a sunny afternoon in 1965, they saw in the southwest sky, a silver, oval-shaped, seamless, totally silent craft gleaming in the sunlight. It hovered for a short time and then it instantly vanished. Living on his own as a 17 year-old he became very ill from blood poisoning and experienced a near-death experience. Greer states that:

“I was carried out into the depths of space... Then I experienced what I now understand to be God consciousness, where my individuality became faint as it merged with the effulgent, unbounded, pure, infinite Mind. There was no duality. It lasted for what seemed to be an eternity because a normal sense of time disappears in that state of being. I could see all of creation, the vastness of the cosmos, and it was beautiful beyond words. There was nothing frightening about it - only infinite awareness, joy, and the perception of an endless perfect creation. Eventually, two brilliant, scintillating lights approached out of the stars. I now understand them to be Avatars: Manifestations of God. They were not anthropomorphic or anthropocentric, but appeared as brilliant points of light - pure, conscious energy. These were the twin Avatars for our era.

As the Avatars approached me, I entered a state of oneness with them. It was incredibly beautiful. Then there was a conveyance of knowledge in a pre-verbal form; before and beyond words. ... Eventually, the episode moved into more of a linear style of communication. One of the Avatars said, "You may come with Us or return to Earth." I had the presence of mind to ask, "Well, what is Your will?" And the Being replied, "Well, it's Our desire that you go back to Earth to do other things."...

I somehow knew the highest response of human will is acceptance of the Divine will, and said, "Okay, then."

And with that, I acknowledged their reality and the very exalted celestial beings that exist and the existence of the Godhead and the oneness of creation and divinity. And that's what I experienced: complete, perfect oneness of unbounded mind and creation as one. Then I sort of lost consciousness, and fell back into my body, just sort of -- whoosh."

Steven Greer's second UFO sighting occurred in October of 1973 when he was 18 years old and it also included what is usually described as an abduction. He had climbed up Rich's Mountain to view the sunset, about 1,524m (5,000 feet) above the town of Boone on a clear afternoon.

“I glanced towards the southwest and saw an extraterrestrial vehicle. It was some distance away but was just like the one I had seen as a nine year old. ... I simply accepted the fact that they were

here. Then the ship winked out, just like the one I'd seen years before. ... When I began the walk down, I noticed a glow off the edge of the mountain and sensed someone was there. Suddenly, on my right, an extraterrestrial biological life form appeared and touched my shoulder so firmly that it was like a strong finger touching me. I looked down and saw the imprint on my jacket: every hair on my head stood on end!

Somewhat childishly, my first thought was, "What does this creature want with me?" ... Its gender was male. He was quite peaceful and non-threatening, with beautiful, deer-like eyes. Then I suddenly found myself transported onto the craft. We were just out in space, sitting. I recall that the craft became completely translucent. It felt like I was floating in space with nothing around, as if the whole craft was made of fibre optics, and its shell could disappear. Space was visible all around us.

So, I stayed there with these ETs, who were three or four feet tall, all with those appealing eyes. It appeared that we were there for one purpose; meditating together. They were interested in me because they wanted contact with a human being experiencing cosmic consciousness as we do, participating with them. At this point I taught them what that state is like for us. We shared it together - an incredible encounter, entirely different from stories usually circulated about extraterrestrial contact.

It was a very non-local experience, with time, space and relativity in a realm unlike what's normal for us. In that state of consciousness seconds, hours, or years no longer matter, because time and space have been transcended. This infinite eternity is the true nature of the mind, the awake self within all of us.

While with these beings, we co-created a code for humans communicating with them. This was the birth of the CE-5 - Close Encounters of the Fifth Kind – initiative. We utilized not only sounds and light but also non-local consciousness and directed, coherent thought to communicate with extraterrestrial beings and their electronic devices. It was clear to me that the ETs wanted humans to move beyond mutually assured destruction and into a peaceful civilization that could co-exist with space in harmony. Earth needed to find people to be ambassadors for this objective. And so, I offered to do this, and to help teach the same to our fellow humans. Nothing more, just that.

Then very suddenly I returned to a "regular" state of awareness and found myself back on the gravel road near the fire tower, a little further down the path from my previous spot, but still at the top of the ridge. I thought, "Oh, my God, how wonderful." The experience of oneness with them had a key message: the conscious mind we are awake with at this moment is the same as that of the Divine Being, and of all beings.

Erwin Schrodinger was correct when he said the total number of minds in the universe is one. There is one conscious mind, and we are It. So, there are only one people in the universe, and we are they. No 'alien' or human; just an unbroken, perfect, seamless conscious life in the universe, and we are all a part of it."

After this amazing evening, I decided to practice all I had learned, taught and shared with the extraterrestrials. Every night before going to sleep, I would lie down and put myself in a meditative state. I would enter unbounded awareness, then expand the sense of conscious mind around me, filling the room, knowing that it was omni-present. On the wings of that omnipresent sense of awareness, I would expand upwards into space, seeing the stars and space, filled with the sense that it was awake. And I was one with that awake-ness, which placed me out there, in space.

Then I would send a thought like a beacon to the extraterrestrial beings, to announce my presence. In a somewhat childlike way, I'd say, "I don't know if you remember me, but my name is Steve. And here I am - let me show you where I am." So, I would do the protocol I developed for the CE-5 initiative.

From October '73 onwards, there began an unprecedented wave of UFO sightings in those mountains. I did this as a way of beta-testing the system, to see if what we had co-created and agreed upon on the ship would work. Well, it did. There were newspaper reports of forest rangers seeing these huge ships hovering over the mountains, down in Shining Rock Wilderness to the south, and over in the Linville Gorge area. . . here, there, and everywhere!

One of the most profound things I absorbed was the unfolding of the cosmology. This came not so much from didactic learning as from direct experience, which included the astral or causal thought realms and the realms of light.

Once one understands the structure of creation and begins to experience it in detail, it becomes very understandable how people can have dreams of the future, alter their physical body to levitate, or to de-materialize and re-appear in another place. All the things you've heard about in what are considered mythological stories or so-called miracles become more comprehensible. They are also completely attainable by every single conscious human being. All beings will one day be capable of experiencing these things. The ability is our birthright- not just humans, but every conscious being in the universe....

That year, I began to have experiences that brought the infinite Being into this world. I could see a rock and know that it also contains pure awareness. Within the rock is the energy and the frequency of a light form, an astral form that gives it structure and its crystalline matrix form. And within that is the idea of it, and within the idea is the primal thought that created all things. And within that is pure, quiet conscious mind. In fact, the totality of everything is nothing but pure conscious awareness, phasing, resonating and playing in different forms and in different ways.

In 1975 I went with some friends to Isola, France, up in the Maritime Alps, to become instructors of meditation. While on this retreat, I had several experiences with higher states of consciousness, what might be called unity consciousness and God consciousness.

One day, remembering what had happened two years earlier in the North Carolina mountains, I wondered if that same extraordinary experience could be repeated. So, in the hotel room, I went through the protocol we'd created in 1973 on that spacecraft.

I then went into the state of unbounded consciousness, and then expanded awareness off the mountain, around the Alps, into space, and out into our Solar System. Seeing the vastness of space, I said to these craft and the ETs on board, "My name is Steve. I don't know if you remember me, but we met a couple years ago, and now here I am up in the French Maritime Alps, in Isola."

And so I showed them the beautiful spiral galaxy, the Milky Way, our star system with the sun and its planets, and the Earth. And then I zoomed in to Europe, to the Maritime Alps of France. I showed them our location in the hotel complex and said, "If you can come visit, please do." This occurred in an unbroken flow of consciousness for about 20 minutes

Later, after lunch, some friends and I decided to go for a walk in the mountains near the hotel. It was about 1:00 in the afternoon. I looked up in the crystal-clear, alpine sky to see a beautiful, huge tetrahedral-shaped ship, shining in the sun. It was clear and fully materialized, and drawing

down towards us, silently.

A good friend in the group who knew of my experiences with extraterrestrial vehicles gasped, "My God, Steve, did you call them here?" And she just came unglued. "Oh, my God, I can't believe it." And I replied, "Yeah, I did. I did this protocol that I told you about." She asked, "My God, why didn't you warn me?!"

At the point this anxiety was shown by some of the group, the ETV stopped approaching us, hovered, and then backed off silently. Then this huge craft just completely "de-materialized," disappeared out of our space-time. I turned to her and smiled, "Well, I guess the protocol does work."....

This taught me that, in fact, we could contact the ETs, and this could be experienced by others. ...One day in late fall 1977 I decided to test the protocol again. That night I sat up in bed and meditated. I went into the expanded state of consciousness, felt it expanding into space, saw the fullness and infinity of space being filled with the light of awareness, and in that light, I saw these extraterrestrial people and said, again, "Well, my name is Steve Greer and I was born in Charlotte, North Carolina on June 28, 1955." I then gave them an entire brief biography! I showed them Charlotte, and how to get to my location. From space, they could go to Charlotte, then up to the North Carolina mountains, about 100 miles away. After following this technique in a stream of consciousness, I fell asleep.

Suddenly, I awakened in the wee hours of the morning between 1 and 4 a.m. And here was this beautiful blue-white craft outside the window and about 30 feet above the house. And the consciousness of the occupant was being projected right into the room I was in! It was very palpable....

The very next day, we heard on radio and in news reports that two space ships were found on the radar at Douglas Airport in Charlotte, North Carolina. They were pursued by a police helicopter called Snoopy. I was stunned to hear that the area of the city where the sightings were centred was where I was born and grew up - the spot I'd shown them in my vectoring through consciousness.

One of the crafts apparently got very close to the police helicopter, and also to an Eastern Airlines jet. This was all recorded by the air traffic control tower, and it confirmed the CE-5.... Frankly, I was stunned and a bit unnerved by the precision of the event. I thought, "Wow. This is serious! I really shouldn't do this anymore until I formalize a program for it." And, in fact, I didn't do it again- from 1977 to 1990- when I formed the Centre for the Study of Extraterrestrial Intelligence, or CSETI. (Greer, 2003)

In Steven Greer's books he describes his meetings with the CIA Director James Woolsey and his wife Dr. Sue Woolsey, the Chief Operating Officer of the National Academy of Science and his discussion with them about UFOs and ETs. The CIA Director admitted that he knew that UFOs and ETs exist, though his enquiries on the subject via all the official government channels came up with no information. He also describes how he briefed a general, head of a major intelligence operation in the Pentagon, and some of his staff on the UFO issue. The General's reply was, "Well, I have no doubt that what you are sharing is true, but I have made inquiries through channels in my Agency and nobody can tell me anything!"

On his website at <http://www.disclosureproject.org/> it states that the Disclosure Project is a non-profit research project working to fully disclose the facts about UFOs, extraterrestrial intelligence, and classified advanced energy and propulsion systems. 'We have over 400 government, military, and intelligence community witnesses testifying to their direct, personal,

first hand experience with UFOs, ETs, ET technology, and the cover-up that keeps this information secret.

On Wednesday, May 9th, 2001, over twenty military, intelligence, government, corporate and scientific witnesses came forward at the National Press Club in Washington, DC to establish the reality of UFOs or extraterrestrial vehicles, extraterrestrial life forms, and resulting advanced energy and propulsion technologies. The weight of this first-hand testimony, along with supporting government documentation and other evidence, will establish without any doubt the reality of these phenomena.

What are the new energy and propulsion technologies that can give us a new world, free of pollution, poverty and conflict? What is the nexus where Mind, Space, Time and Matter all come together - and how might this be used technologically by an advanced civilization? What does the blue-print of the next 500,000 years of human civilization on Earth look like – and how can we transition to that time?’

Steve Greer and his team have had many experiences since that time in different localities and advises that there are several signs to look out for that indicate that a craft has approached beyond the crossing point of light. These include a sense of body warming and an increase in the surrounding temperature and a change in atmospheric pressure, felt in the observer’s ears. A complete stillness or quietness, body vibrations, buzzing, humming and clicking sounds and smells of ozone. When ET’s are on the ground shuffling sounds can be heard, strange breathing and coughing sounds, soft and gentle touches and sparkling lights as though there was an electrical discharge, often greenish or whitish.

He notes that different people will see ETs very differently ranging from indistinct shapes to fully visible entities. Interactions will range from just a sense of a presence to loving personal acknowledgement and full telepathic conversations, typically non-verbal. Greer’s field team has been surrounded by a craft, partially on and above the ground with structural parts of the interior of the ship visible. (Extraterrestrial Contact, The Evidence and Implications. Crossing Point Publications, Afton, Virginia, USA, 1999, <http://www.disclosureproject.org/>).

Apollo 14 astronaut Dr Edgar Mitchell, the sixth man to walk on the moon, recently released information to the world’s media that he was aware of many UFO visits to Earth during his career with NASA but each one was covered up. Aliens have contacted humans several times, but governments have hidden the truth for 60 years, has claimed. Dr Mitchell, now 77, has a Bachelor of Science degree in aeronautical engineering and a Doctor of Science degree in Aeronautics and Astronautics. Dr Mitchell, along with Apollo 14 commander Alan Shepard, holds the record for the longest ever moon walk, at nine hours and 17 minutes following their 1971 mission

He stated during a radio interview that sources at the NASA space agency, who had had contact with aliens, described the beings as 'little people who look strange to us.' He said real-life ET's were similar to the traditional image of a small frame, large eyes and head. He claimed our technology is 'not nearly as sophisticated' as theirs and "had they been hostile", he warned 'we would be been gone by now'.

Dr Mitchell also claimed Roswell was real and similar alien visits continue to be investigated. 'I happen to have been privileged enough to be in on the fact that we've been visited on this planet and the UFO phenomena is real,' Dr Mitchell said. 'It's been well covered up by all our governments for the last 60 years or so, but slowly it's leaked out and some of us have been privileged to have been briefed on some of it. I've been in military and intelligence circles, who know that beneath the surface of what has been public knowledge, yes - we have been visited.

Reading the papers recently, it's been happening quite a bit.' (24th July 2008
<http://www.dailymail.co.uk/>)

ETs utilise laws of physics and technologies completely beyond the electromagnetic spectrum that we are familiar with and operate on the other side of the light / matter barrier. To understand this better we need to communicate directly with extraterrestrials, and this may have been accomplished. Dolores Cannon is a retired Navy wife from Huntsville, AR, USA and was nearly fifty years old when she began experimenting with hypnosis and past-life regression. Dolores has been a UFO investigator for twenty years, using her skills as a regressionist to help people that had been involved in abduction cases. She has written several books on the UFO information that volunteers have revealed while under hypnosis.

Dr Thomas E. Beck PhD. describes hypnosis as an 'altered state of consciousness featuring "selective perception," a process in which the subject, who is in control, chooses to perceive only what is relevant to the task at hand. Most people are unaware of the vast amount of information that can be accessed by one's mind. Once this material is brought to awareness and consciously transformed, change can be rapid. Hypnosis involves guided concentration.'

(<http://becolli.home.mindspring.com/book.html>)

Clients would ask Dolores to hypnotise and regress them back to incidents that appeared to them to be strangely traumatic, incidents of missing time and unsettling memories, to discover what exactly had occurred. Critics may regard the information coming from someone undergoing hypnosis as unreliable. However, the information obtained is far too complex and too scientifically valid to be coming from someone's imagination. If extraterrestrials are able to create a Mandelbrot Set in a wheat crop, then they should have no trouble contacting humanity in any number of subtle ways.

This first occurred to Dolores while regressing a subject, Janice S. in Little Rock, USA in August 1998. Although Janice had a highly responsible position as a computer analyst for a large corporation, she had been having very disturbing abduction experiences since she was a child and, naturally, was unable to talk about it without being thought of as crazy. Under hypnosis she found that the abduction experiences were highly enjoyable & that she was actually working with the extraterrestrials and being taught how to operate at different frequency levels. While questioning Janice on what she was observing during a regression to an abduction incident, her voice suddenly changed to a monotone mechanical, hollow-sounding voice that pronounced each syllable individually. The being stated that it was the extraterrestrial that Janice was currently working with and that it looked like the picture of the face on the book *Communion*, a Grey (*Polioderma gigasoculus*), that it was in a round disk craft within the Earth's atmosphere and that its species was attempting to hybridise with humans and understand human emotions.

It stated in reply to a series of questions that "We are capable of simulated emotions, but we do not have them built in as you humans carry them around....We can feel any emotion you can feel, but it is felt in our minds as opposed to affecting our physical bodies... I am trying to tell you that if stress is applied to us, it does not affect our body that way. However, we do experience it with our mind.

It is simply caused by the fact that where we are from and where we developed, we developed differently. It is not because we did not have it. We didn't know it. It was simply an unnecessary part of our existence. We began the way we are. That is why it is hard for us to understand Earth emotions, and some of the manners of existence in which you apply yourselves.

We are not here to harm. We are not here to take over your planet...We can image your planet or

a place, and then we do not have to physically fly there to go there. We do not need a type of power source. Thought is our power source. It can operate many ships. Do you understand light energy? Well, there is a point just past light on which we travel. It's a light frequency. Its not visible to the naked eye. This frequency is faster than your light... Vibrational frequencies change in this kind of travel.

We think you are beautiful. We have physical capabilities, but they are unlike your capabilities. We are in cooperation with other beings. It is complex, the projects that we work on. Some humans are involved in many of our projects. A human can be a subject in one project, a participant in another, an advisor in another, a teacher in another. So, it depends if the human is multilevel. We look for multilevel humans. It depends on their degree of evolvement. It depends on their vibrational rate. It depends on the degree of molecular structure development. It depends on the degree of brain density.

There are many elements taken into consideration. And we are most, to use your Earth term, "loving" in that regards. In that we do not wish to cause harm to anyone who has agreed to participate. At first the people of your Earth who agree to participate do not understand, do not know why, and cannot know initially all the things they later learn as they continue to participate.

And sometimes we have been fed misinformation by other human elements within your society for which we do have agreements. They supposedly supply us with individuals who have been examined to participate in them. We find that we have a better success rate by approaching the individuals on our own..... It is not we who have the projects in mind. It is we who have been directed by a level that is more highly advanced than we are.

We would hope that you be most careful with what has been revealed to you today. You can contact me again if I am the one you need to speak with. You could perhaps contact other beings she works with. We thank you for your work." (Dolores Cannon, 1999, *The Custodians 'Beyond Abduction'* Ozark Mountain Publishing, Huntsville AR, USA, pp. 311 to 333.)

Dolores Cannon regressed Janice a second time in Little Rock in December 1998 and was again contacted through Janice by an extraterrestrial. This being described itself as an energy being that could change its shape and explained that it was communicating through a method of transference into Janice's brain cells and then her vocal cords were used to convey the sound. In answer to Dolores's questions this entity then communicated with Dolores for a considerable period and explained that the Grey aliens were subject to them.

'There are different levels of workers. You were simply speaking with a level of worker with which she (Janice) was working at the time. There has been a stepping up. There have been many other meetings, and there is a different level of work going on, as was communicated to you before. I know that you remember.

We told you we had many projects... Since your last meeting with this individual (Janice) much work has taken place. And assimilation integration work has taken place to the point where we now work with this individual at an energy level state in which there is a difference of functionality. The individual has advanced past the point of working with the being she was working with. It is now at a different level.' (Cannon, 1999, pp. 347 to 367)

When Dolores asked whether there were different kinds of aliens or were, they just manifestations of a shape-shifting alien the response was that there are many species of ET working together, but that the communicating entity was different and that it was an integration.

'They exist just as you exist. The difference in them is the same as the difference between you

and someone who is Chinese. We are an integration. Because of our development we are able to do the things that the others do. This is not our main purpose. The experiments (hybridizing, etc) are something they are highly involved in. We are working at levels much past there.

Therefore, the *greys* and those of our brothers who are engaged in that level of work, would be considered much as your doctors are considered. In that they fix, reconstruct, maintain and do the sort of work *mechanically*. They are not involved in energy work as we are involved. The energy work they are involved in is simply to accomplish the mechanical changes within an individual.

There is a race of beings who are pure extraterrestrial beings, however they are tall and unassuming people. And if you saw them you would think they looked like giant versions of your people on Earth... There are several tall races. Many of these are teachers. When the individual is working with a mother ship, there is great teaching. They are past the level of the *greys*. They have moved up, in your language.

See, it is much as you are always saying, "We are *one*". Aliens are all one, but we are all different, in the same manner. And we develop much the same as you develop individually. In the same manner that you develop individually at a different pace, so do the aliens. Therefore, at what point they are in their evolution, they are being allowed to do their experiments, just as you are. Because of the interactions between the groupings of them, we all fit into the *whole*. There is a definite hierarchy. It is an evolutionary process with them just as it is for the people on your planet, and as it has been from the beginning of your planet. So, we have alien evolution.

In our communication we use one symbol, and that symbol can portray paragraphs and paragraphs of information. We use symbols to describe or give information, either in mental communication or in writing. Instead of writing a name for an individual on the craft, one symbol could tell what he does, what he has been doing, what his purpose is here on the Earth project, and where he comes from, what type of environment. His history and function is in that one symbol. Other symbols describe the planet and star system the individual comes from. Some of the symbols are on the walls of the craft, and in our books' (Cannon, 1999, pp. 347 to 367).

When Dolores asked 'We have been told that "abductees" – I don't like that term, but that is the term being used - when people are abducted they are implanted with monitors or monitoring devices...people like us who are UFO investigators; are we also monitored and kept track of?'

The extraterrestrial answered that they were.

'It is for your protection. It is not for any subversiveness. You are already trusted. You wouldn't be talking to Janice right now if you were not trusted, because she has not submitted to anything like your investigation before now.... The investigators. You, your friend, are valued. For us, we value that. You know, you're like our personnel. You're the public relations. We look to that and appreciate that.

The devices that are implanted, there are different purposes for different devices. There are two main purposes of devices. One is to be able to connect with that individual.... You know, depending upon the level of work of the "abductee" – which is not what we consider these people to be, from our point of reference. We simply consider them to be workers of the light, just as we are. If you take all the beings that we touch, that touch us, you could collectively call them simply and very truly "light workers" (Cannon, 1999, pp. 347 to 367).

Surprisingly, we have hard evidence that alien abductions do indeed take place and highly advanced alien technological devices are implanted into people. Doctor of Podiatric Medicine, Roger K. Leir has been practising since 1964, removing a large variety of foreign objects out of

patient's feet and implanting metal screws, plates and pins into other patient's feet during medical procedures. Consequently, he was contacted to remove mysterious foreign objects detected during x-ray examinations that lay deep within the tissues of patients, often near the bone with no surface evidence or history to explain how the object was implanted other than unsettling memories of close encounters with UFOs.

On August 19, 1995, Dr. Roger K. Leir removed two anomalous foreign objects which were lodged in a big toe. The first was a small, triangular object, measuring about 1/2 cm. on each side. As it was removed from the incision, it was discovered that it was directly connected to a nerve, thus causing the patient pain when the object was severed from the connecting tissue.

The second object was smaller than the first object and of the same material. Using the same techniques, Dr. Al Samuels operated on the left hand of another patient and extracted a seed-like foreign object that was small, measuring about 4 mm x 2 mm, which was also determined to have been attached to a nerve.

The body tissues attached to the objects were removed and sent to a pathology laboratory for normal biological examination. Dr. Leir expected the pathology laboratory results to include normal evidence of the standard inflammatory reaction that foreign bodies always cause on human soft body tissue and was amazed that there was no inflammation at all in both patients. Furthermore, both patients had nerve proprioceptors attached to the foreign bodies deep within tissue adjacent the bone where nerves are never located.

Of the foreign bodies themselves, a very extensive laser-induced breakdown spectroscopy (LIBS) test was conducted for the National Institute for Discovery Science (NIDS) at a National Laboratory. To improve the information base on these objects, the NIDS also decided to provide the resources to have more extensive metallurgical testing conducted at New Mexico Tech. The results were remarkable in that several characteristics of the specimens are similar to certain meteorite-type materials.

Samples of the foreign bodies were found to be needle or lamellar in shape, with a predominantly iron core and a non-conducting, dark grey-black coating and were observed to be rather strongly magnetized along their long axes. They were found to contain Anapaite, $\text{Ca}_2\text{Fe}(\text{PO}_4)_2\cdot 2\text{H}_2\text{O}$, Goethite, $\text{FeO}(\text{OH})$, iron phosphide, FeP_4 , and phosphorus oxide, P_2O_5 with major quantities of silicon, phosphorous, molybdenum, chlorine, sodium, calcium and a trace of copper.

The microstructure of the core (polished and etched) as observed under an optical microscope resembles an iron rich alloy with large amounts of carbon, probably in the form of iron carbide. The iron is likely to be alpha-Fe with a body-centred-cubic packing (bcc structure) since the samples are magnetized. The hardness of this core material is very high, in the neighbourhood of high carbon tool steels. (Dr. Roger K. Leir, D.P.M. 1999, *The Alien and the Scalpel*, Scientific Proof of Extraterrestrial Implants in Humans, published under the auspices of the Bigelow Foundation and the National Institute for Discovery Science, Granite Publishing, Columbus, NC, USA)

Dolores Cannon received more detailed information in June and September 1997 when regressing another abductee, Bonnie, a UFO investigator herself, who was returning from a meeting, with other such investigators, at night in her car when she encountered a light flash that cracked her windscreen. When recounting the incident under hypnosis, her subconscious mind described the beam of light that lifted her car into a hovering craft and then how she was taken from the car to a chair by numbers of grey aliens who placed a domed object over her head. She described the ETs as small, naked or skin coloured covering, slim, hairless beings with silvery-blue-grey skin, long neck and a large bald, head with large bluish-black eyes. Their skin texture had a fine grain or slightly bumpy texture of subtle tiny rounded lumps similar to human skin when one is cold, and the skin erupts into goose-pimples or goose-bumps.

The face was small compared to the size of the enlarged braincase with a pointed chin and small nose and mouth. There were no eyelids, eyelashes or eyebrows but there was a slight ridge over the eyes, almost an eyebrow but with no hair. There is a sculptural shape around the eyes, a suggestion of a cheek-bone beneath the eyes, a tiny shaping for a nose with two vertical oblong nostrils. The mouth is 3 cm (1.25 inches) wide with no lips. There is a slight bump where the ears should be but no noticeable ear hole. The hands are very thin and narrow with three elongated, bony fingers and an opposable finger-like thumb with more sidewise movement than the other fingers.

A taller species of extraterrestrial being, stood in front of her and it had extremely white skin, was very tall and thin, with a longer, thinner, very bony white head with a minor indentation in the middle of the top of the head. The face was larger at the top and tapered down, almost like the view front-on of a horse, protruding a little in the middle and lower portion, with no ears or nose and a mouth closer to the chin or under the chin, very different to the mouth of the grey aliens. The head sat upon a very long thin neck with very narrow shoulders, thin arms and a very thin torso.

It had much larger eyes in proportion to its face when compared to the eyes and rounded head size of the smaller blue-grey aliens. Unlike the smaller species with their blue-black eyes, the taller species had brown-black eyes. The eyes were also very-differently-shaped when compared to the smaller species. They were vertical rectangular eyes with curved corners and measured about 10 cm (4 inches) long and 7.5 cm (3.5 inches) across, so that they covered a large portion of the face, very different to our horizontal eyes.

While discussing the potential ability of these large eyes the tall white alien took over the conversation and communicated directly with Dolores.

‘I would like to speak for myself now. We see the whole area. We don’t have to shift our eyes like human beings do. We see a very broad spectrum. And not only that, we see within everything that’s in that field of vision. ... We can see through to the soul, the essence, beyond all the layers of overlay and conditioning of the Earth person.’

He added that the smaller species, although not able to see such an all-encompassing view as himself, could see everything going on within an individual, including the physiological functions at work. It also described the self-renewable membrane that protected the eyes.’

When Dolores asked if all the information gathered from Bonnie was put into a computer and what would be done with it the ET replied that all information was kept in their minds, not in machines and the information was shared.

‘We have connections with many, many other beings. Of our type, and of other types who are very interested in Earth and Earth people. Sometimes we telepathically share this. We send it out with our minds. Its like projecting thought out.... It’s like a broadcast system.... It’s as if there’s an invisible meshwork or netting inter dimensionally, that is in all directions.... Almost like thought waves that, from the sender, like myself, radiate out equally in all directions. So that anyone in that frequency, who has this capacity, can pick up these same thought waves. All those that are interested will pick it up, or those who are not interested do not pay attention.’

When asked about where they come from and how they procreate the ET talked freely about their lives.

‘Where definitely within what can be seen on Earth star maps. We don’t use a name for ourselves at all. It’s all done by energy and vibration. When we travel back there, which we don’t do very often, it is an effort and a long way, we can home in and find it, our recognition is more in a sense of vibratory frequency. Where we are right now is a very large craft and its quite high

above the Earth.... We have living quarters and work quarters. Many of us have families right here on this very large craft.

From the Earth person point of view, we're more, in a general sense, like an insectoid type. We don't think of ourselves that way, but we know many Earth people do.... Our females generate and lay eggs, and we fertilise those eggs, out of the body of the female. So, it is very different. We do not get together with our females the way people on Earth do.

There are many different types of the little grey beings.... With these little ones it is more of a laboratory procedure, of taking cells from these beings and mixing them. There are very subtle differences between male and female in these little grey ones. You do not see the differences bodily from the outside between male and female.

So, we take samples from them, we call it the 'genetic material', from the surface of the skin. Usually we take it from their protected tender places, from under the arms of the male and from between the legs. Not because there are genital apertures there, openings, but because that too, is a place that is not open to all the air and dirt and pollutants and anything. It's more enclosed or protected.

We take the scrapings from the males, and we take it from the females, and mix them together. We have very *strict* pristine laboratory conditions. We breed the genetic substance in controlled liquid situations, until we feel that the life form is ready to come out of the fluid and live as a regular being.

Some of the species have found the method that I was talking to you about, about taking the scrapings, the genetic material from under the arms or between the legs, worked for quite a while, but is no longer viable. They need other genetic material different from their own. After having done the interbreeding for such a vast amount of time, they're needing other genetic material from other species. And they're choosing humans.

In some cases, they intermix the genetic material between the human male or human female with another species, and create a hybrid being. There are groups coming to the Earth to take these genetic materials and mix them with their own, in order to perpetuate their own species, because they do feel they are in grave danger. In fact, some of those species do not even have their own home planet to live on any longer, and they are living on craft.

Wherever life is found, whether it's in the millions of species on Earth, or the many, many different types in existence elsewhere, it seems to be a basic common feature of life that each species wants to perpetuate its own. As you know from your animal kingdom on the Earth, species will do what they must do to survive. So, this is part of that outreach to survive for some of them.

Some of them send emissaries to the Earth to get the genetic material to keep their own species going. Not enough of the offspring were surviving. ...Some of the species doing that work with human Earth people, have also tried doing it with other species whom you would call "extraterrestrial," species that do not live on Earth. So, there is, actually a very large range of experiments and experiences going on between some of these species who are doing this reproductive work, and, not only with Earth people, but other beings from other locations in the universe as well. All in a great attempt to perpetuate their species.

Now there are other agendas as well. There are species who feel they want to create a new species that can understand Earth people. In, being part Earth human species, and the other species that genetically are being mixed for these offspring. These offspring will then be able to understand both species. That is very needed. And that's a very big program. So, there's the survival program, and there's the go-between or the ambassador program.

We're trying to get a broad picture here of how we and the other groups are affecting human

beings. From our point of view, we would like to improve on how we interact with human beings, we do not want to cause distress, harm, fear, and trauma. We would like to have all of this done in a much more well-received way. We would like to have the Earth people benefit from knowing us and having contact with us. We feel that we benefit from having contact with them.

However, I must hasten to say that in broadcasting what we find, there is the opportunity for less altruistic groups from space to use this information in a more self-serving way. It's terribly important that human beings come to realize there are other beings coming to the Earth and interacting with people, who are very self-serving and uncaring about the effects on people. But there are many groups that are very caring about humans, about the whole of humanity, and what humanity is experiencing in terms of negativity in their warlike nature.

We're terribly concerned about their greed, their selfishness, and about what humanity is doing to the beautiful, living being that the earth is. So, there are many of us who have great concern, and would like to help as much as possible. But we know there is enormous prejudice on the Earth even about our existence

Which is perfectly ludicrous. So, we're up against a lot. There are some of us who would like very much to have good equal negotiations and contacts with people. And there are a few human beings here and there who would like that as well. But it's very hard, for those of us who feel that way, to adequately get together with the Earth people who feel that way too. So, this experience right now is very prized, because we are very decently and openly talking with you as an Earth person. And you are very receptive. And it's all going very well. (Cannon, 1999, pp. 525 to 546).

When Bonnie was first hypnotised by Dolores and her subconscious mind described the incidents that her conscious mind could not remember, she encountered exactly what the tall white insectoid alien told her.

'You are our treasured one. We need to learn from you, just like you learn from us. And now we're meeting face to face. And we can know what you know about us. And it is very good. We are downloading information from your mind. We're just taking all that you know from all those people you're worked with who've had episodes with ones like us. And we want to know how these people experience *our* interactions with them.

And you know all that, Bonnie, from many people. And you've seen them change. You've seen them go from terrible fear and trauma, as you call it on Earth, to acceptance and peace. And in many cases wanting to know us better. As you too have wanted to know us. As you have had some awareness of. And now you *can*. So, this experience is for you too.

Thank you. We appreciate your information, and we appreciate the work you are doing with people whom we work with. We honour you very much, and you will be fine. We're not taking away *your* memories. They're all perfectly intact. And we're very happy to have you share anything you want with people on Earth. Because it is important that they become very accustomed to the idea that we all exist. And that we interact with many, many of you.

Use any opportunity you can to share.... Even though *we* are the ones learning much more about *you* at this time, you human beings, you Earth people, will have you're turn eventually, learning more about us... We are really working very hard through many Earth individuals to keep improving the quality of life on Earth. And it is very important for other people to know that part of it.

We even sometimes send people to you to work with. It may not seem like it to you, because they say they heard you speak, or they were referred by somebody whom you know. But often we are the ones impressing them and leading them to the lecture where they'll hear you and learn where

they can reach you. And they will come and work with you, because you are one of the ones who's open for the balance, open for the good that many of us are trying so earnestly to achieve.

It's very sad for us to see so many of the things going on amongst Earth people. So, when we find one like you, and others like you, you have no idea how much we honour you all. We honour that you learn and enquire and read, and you're open always to all the other inputs. And you share that with other people. The work that you're doing with other people to help them in this life to open and accept the interactions with us, has a far greater affect on their souls than you realise. It's way beyond just this lifetime, for each of those people begins to integrate it and accept the interactions with us. So, this has far longer effect, or far reaching effect than you can possibly know at this time.

...I want you to know that when we, as you might say, pick people up and take them for experiences, we choose very well the times in their lives that we do this.... That's one of the reasons we tend to work so often with people when they're sleeping. To not interrupt their work day or their family life. We often meet with them and take them when they're on a vacation where they have leisure time.... We will just gently put you down, and you will continue on your way.

The ET further explained that they normally operate in a dimension of higher frequencies and when one of their craft enters our third dimension it will often cause a flash of light.

'We do this a lot in the daytime, but people don't tend to see the flashes, because the sky is light from the Earth point of view. It goes through an immediate adjustment to being, I know it's hard for Earth people to understand, but it becomes denser itself. The craft and those on it. And so, they very rapidly enter and almost immediately adjust to being enough in the third dimension that, oddly enough, third dimension doesn't see it usually. They can see it, but they're usually not looking. You'd be amazed at how many of our craft fly around without anybody ever seeing us.

So as Earth life forms of all kinds leave the third dimension (during abductions) and come into our lighter higher vibration density dimension, at which there is a type of physicality, but not as "solid", at that point there can be, and often is, this flash of light. Now, again, in the daytime most people don't see this or if they're asleep at night they may not see this, or they may experience just being in the beam of light, and not so much that flash. ...

Now, many times we do it a different way when somebody is driving along the road. We will surround them with light and render their car motor inoperable. Their car motor stops, their lights go out. We try to make sure they get over to the side of the road first, or off the road. We show up and usually we bring them up in a beam of light.

We don't ever put any of our craft right on the earth. It would be very harmful to our craft, because of the energy effects radiating around the craft, and under the craft, of course. Over the whole surface there is a radiating energy effect that helps us propel and fly. It would be interrupted if the bottom of the craft were to sit on the earth. So, it must hover, or sometimes put down legs. (Cannon, 1999, pp. 347 to 367).

Dr. Janet Colli, who holds a Ph.D. in Clinical Psychology, is a consciousness researcher who integrates psychology with extraordinary human experience and healing. After 13 years of clinical research, Dr. Janet Colli has discovered that there is a consistent and strong spiritual component with those who believe they have experienced other-worldly visitations such as "close encounters" with extraterrestrials.

'There is a correlation between "close encounters" and the world's great religious and wisdom traditions,' says Colli. 'For thousands of years, claims of contact with other-worldly beings have been made by every religion known to humankind. Today, these claims are still being reported.'

She believes that these experiences are a crossing over between the material world and what in Eastern philosophy is called the "subtle realm," a spiritual dimension. In her book, "Sacred Encounters: Spiritual Awakenings During Close Encounters," she writes in detail about what appears to be happening during and as a result of such encounters. She presents case studies such as "Hayley," who transitioned from trauma to interspecies communicator, and "Joy," who was initiated into a full-fledged mystical experience. Colli's clinical research brings together the psychology of close encounters, spiritual experiences, and the ultimate human experience, enlightenment.

‘Eastern mystics have sought enlightenment for millennia, enshrining it in ancient lineages,’ explains Colli. ‘Yet few Westerners realize that many of these same gurus have long been communicating with so-called alien beings.’

According to Colli, the current surge of "subtle realm" encounters has unveiled the hidden dimension that surrounds us all, the realm of aliens. She believes that those among us who consciously sense the subtle realms herald a critical stage in human evolution. Colli believes that this paradigm shift can help prepare the modern world for our next evolutionary leap as we awaken to the fact that we are "not alone" in the universe; otherworldly beings are playing a pivotal role in the evolution of human consciousness.

Species Shift were the words communicated to "Hayley" by her "visitors." By altering her and others, the shift would move like a wave through our species—by inner connection we all share. "The experience truly has changed me . . . and made me feel like I found God," says Hayley.

When looking at the question of "close encounters," Colli agrees that science is needed to verify her claims that extraordinary experience is a portal to a biologically-based transformation of the human personality. Colli elaborates that common "value changes" as a result of close encounters include increased interest in spirituality; increased appreciation of nature and of life; increased self-acceptance as well as concern for others. When looking at these transformative aspects, Colli calls "experiencers" the evolutionary forerunners that will usher in higher consciousness on a collective level.

"The stakes are high," says Colli. "Humanity stands to gain enormously from this venture. For when we reach into the depths of ourselves, we will simultaneously travel to the farthest reaches of the universe." (<http://becolli.home.mindspring.com/book.html>)

She presented evidence relating "close encounters" to Sufi, Hindu and Tibetan Buddhist traditions at the 31st annual conference of the International Institute of Integral Human Sciences (IIHS) in Montreal, Canada, in May 2006. The IIHS is a non-profit organization affiliated with the United Nations Department of Public Information. It serves over 10,000 general members and students from many nations promoting the convergence of new sciences with spirituality, creating inter-religious and inter-cultural understanding for world peace (<http://www.iihs.org>).

Her conclusions are consistent with the research of the late Harvard Medical School professor of psychiatry, Dr. John E. Mack, author of "Passport to the Cosmos." Mack listened to the similar testimony of more than 200 experiencers from the West and from indigenous cultures. He wrote that our western culture needed to redefine our worldview to accommodate the evidence of this paradigm shifting phenomena.

Adrian Dvir, an engineer who discovered that he was a medium and a healer after he started to collaborate with extraterrestrials in 1995, provides further details of alien activity in his book *X3, Healing Entities and Aliens* and at his website <http://etmedical.com/index.htm>.

He writes ‘there are many active alien research teams that are involved in a variety of researches... alien teams study Earth ecology, observe nuclear, chemical and biological development of weapons as well as many other fields of human civilization. The alien medical

teams study our anatomy, physiology and common diseases in order to find cures for human illness.'

He provides detailed information on the implants that have been removed from patients by Dr. Roger Leir. "The tagging implants are the simplest and they are for future use and identify human research subjects or to tag people that are potentially suitable for future contact...The tagging implant is made of a specific material compound and has a specific form. This piece of material acts as a receiving antenna and transmitting antenna at the same time. The aliens don't use electromagnetic waves. They claim to use some other waves, very low level at the atomic or sub atomic level. The aliens transmit such waves and the implant receives them, oscillates and transmits the waves back.

There are prothetic implants that replace or support natural body functions or organs that don't function properly...They are experimenting with different medical implant devices, made from biocompatible materials, look like natural body tissue, are very durable and can survive longer than the human life span. The implants use body energy, or they have an internal energy source working at a sub atomic level.

The research teams are part of a huge organization and represent 54 alien civilizations. The aliens disclosed that many similar alien organizations exist. Lately the 17-member, 45 member and 68-member alien planetary organizations also made their presence known on Earth and collaborate with the 54-member organization in medical activity. The 54-alien member council's purpose is to include planet Earth as a member in their organization.

The council is a very ancient organization. It was first established to solve problems between two civilizations. Then gradually other civilizations joined it. Today the council is responsible for most of the common research and development project of the civilizations. The council includes representatives from all the civilizations that take part in the main decision-making. There are also professional committees responsible of many aspects of the council projects.

The council searches for new populated planets. If they are found suitable, the council gives help in many ways and tries to add them to the organization. Earth is such a planet. It seems that it is a common practice between civilizations to form groups, enter into confederation agreements, and act under a rule of a selected council with representatives from all the planets in the confederation. There is an agreement between all the aliens' organizations that earth is open for research. (<http://etmedical.com/index.htm>)

Former NSA Consultant Dr Michael Wolf has written a book, *Catchers of Heaven*, published in July 1996, which provides additional information on the extraterrestrials. Chris Stoner interviewed him and the interview can be read on a web page set up by Paola Harris at <http://www.paolaharris.com/>.

Dr Michael Wolf served as a scientific consultant for the American President and NSC on ET related matters. He was a member of MJ12 special studies group and appointed head of its leading agency - the Alphacom Team - which specialises in gathering information on the different ET races. Dr Wolf said he had an MD in neurology; a Ph.D. in theoretical physics; a BS in biogenetics; a JD in international law; and a D.Sc. in computer sciences. Dr Michael Wolf provided the following details after his superiors at the National Security Council (NSC) gave him permission to 'generate a controlled leakage of secret information'. As Dr Wolf commented, 'I look forward to the day when the secrecy surrounding extraterrestrial contact ends so that our race can move forward to the next phase of its history - now cosmic in scale.'

The following information comes from Chris Stoner at <http://www.paolaharris.com/>.

The first US crash / retrieval of an ET craft occurred during 1941 in the ocean west of San Diego. Retrieved by the navy, dead Zeta Reticulans, alias the 'Greys', were found inside. Craft and bodies were taken to the Foreign Technology Section at Wright-Patterson Air force base in

Dayton, Ohio, and studied by the Retfours Special Studies Group. After dismantling the craft parts were sent to S4 and Indian Springs in Nevada. This craft crashed due to the recently invented pulse radar being tested on the nearby Tinian Island, located three miles south/south west of Saipan. The US navy has held a leadership position in UFO matters since.

The Roswell Crash occurred during July 1947 and the account in Colonel Corso's book 'The Day after Roswell' is accurate. Two craft crashed at Roswell after colliding with each other during an electrical storm. One contained 'Greys' the other 'Orange' ETs - both named due to the colour of their skin. The 'Orange' types come from the Andromeda star system. The Santilli autopsy film is genuine and is an autopsy of an 'Orange' ET. There were two different autopsies being carried out on two different ET beings during the same period.

The autopsy on the 'Orange' ET revealed that it had a very large head; big dark eyes with no irises or whites; six digits on hands and feet; the brain has four lobes; is more developed and connected with no corpus callosum; different optic orbs and nerves; and a sponge like digestive system. There are different types of 'Greys'. Dr Wolf worked alongside highly evolved ones which had personalities and even a sense of humour. Dr Wolf never met a 'Grey' whom he disliked. To him they were family. These 'Greys' enjoyed hugging and kissing humans. Their smooth and soft bodies feel like dolphin skin to touch. He communicated with these ETs through telepathy.

The 'Greys' use a form of directed mental energy in self defence. There is active trading between the 'Greys' and 'Oranges'. Dr Wolf said, "Trading has a different meaning for ETs. They share knowledge like technology and philosophy and send their people to each other's planet to learn the culture."

He had conversed with human looking ETs from the Pleiades and Altair star systems - nicknamed the Nordics and Semitics. Dr Wolf explained they are very spiritual people and act more as galactic counsellors. A Nordic has a perfect and very sensitive looking face with few lines; blue eyes; usually blond hair; around 6 ft tall; very clean; no body odour; and mainly communicates telepathically. But while on Earth uses a small implanted voice- box to converse with humans.

Their internal organs are fairly like ours although the digestive system is different. They don't need to eat every day. Nordics have powerful minds. Dr Wolf said, "They can open a dimensional portal just through a single thought and physically disappear. I have seen this done. They live on a much higher plane than us. Thoughts are energy and Nordics use a device, either worn or placed in a pocket that amplifies this energy. They also harness crystals for the same purpose."

Dr Wolf states from his studies that several different confederations of ETs are visiting us. They include; The Alliance consisting of human-like beings from the Altair, Aquila and Pleiades star systems; The Corporate made up of various 'Grey' races from the Zeta Reticuli system; The Federation of Worlds, which include an unspecified number of different ET groups from the universe; and the United Races of Orion, which consist of various beings from that star system. These confederations are also inter-linked with each other.

Dr Wolf believes that several the scientists presently working for the government were abducted when children by the 'Greys' so their intelligence and general brain capacity could be increased in preparation for the work ahead. They are hybrids. Technology gained from the ETs include LEDs, superconductivity, computer chips, fibre optics, lasers, gene-splicing therapy, cloning, night-vision equipment, Stealth technology, particle beam devices, aerospace ceramics and gravity control flight.

Dr Wolf believes that a planet is a living entity with its own consciousness and that ETs commune with their planet to create a harmonious relationship. Dr Wolf says, "Some planets

grow buildings of pure silicon for the inhabitants out of unconditional love. I have seen and held this silicon. I have also witnessed Zetas communicate with Earth."

ETs are astounded by how badly we treat Earth. They can't understand why we wish to destroy it. How multi-nationals can continually rape this planet through greed and avarice. One of the Alphacom Team missions is to determine whether, "We can use the ETs technology to restore Earth to its former pristine state of natural balance."

ETs like many things about humans. Dr Wolf explained, "They especially love our great imagination and creativity along with the ability to have profound dreams. But they would like to speed up our spiritual evolution." James Courant (audio tape 'In conversation with Dr Wolf'): Paola Harris (<http://www.paolaharris.com/>).

Of interest in the strange field of ufology are the many stories of crashed discs just lying around, sometimes for days, with survivors & bodies finally collected by the authorities. Even with their highly sophisticated technology, their craft have, on occasion, been disabled by our relatively primitive weapons or have accidentally crashed (if the reports are based on fact). Furthermore, there has been little evidence of rescue attempts by the ETs. Apparently, the ETs and their galactic federations do not have the interest or the ability to keep an eye on the whereabouts of their crafts and their personnel. Advanced technology and highly trained staff are just left to rot in crashed vehicles on alien planets such as our own with no contingency plans to rescue their astronauts.

If we were monitoring a civilized planet some time in the future it is difficult to imagine us allowing our technology getting into the hands of another less advanced species. Perhaps the ETs have evolved beyond structured galactic federations and exist as individuals with alliances and interests and no longer possess lines of command that would be called into action during an emergency. Accidents may be so unlikely that they do not concern themselves with the consequences and have no response mechanisms allowing us to take advantage of the situation. There is also the possibility that the occasional crash has been purposely undertaken so that we can gain some of their technology and rapidly advance, to more likely survive & eventually communicate with them.

It is difficult to know how reliable all this information is. All we can do is read it and compare it with the other information coming in. What is noticeable is that although much of this chapter comes from several different publications by a range of different authors working in different professional fields, much of it appears to mesh together. The information from one author tends to support that of other authors so that it may well be an accurate general presentation of the universal ecosystem in operation around us.

The ecosystems that operate across our planet's surface possess a vast array of completely different life forms interrelating, competing and cooperating to produce a single living organism, our living planet Gaia. Humanity possesses a vast array of completely different races and cultures interrelating, competing and cooperating to produce a single living highly intelligent organism, the global village or planetary mind. The extraterrestrials possess a vast array of completely different species, races and cultures interrelating, competing and cooperating to produce a single living highly intelligent organism, a universal mind. Together we all form a single entity constructed out of consciousness, reality.

Chapter Twelve

The Possibility that Extraterrestrial Technology Operates our Civilization.

Col. Philip J. Corso, (Retired), a former Pentagon Official, published his memoirs in 1997 detailing the discovery of intelligent extraterrestrial life forms and the retrieval of a crashed spacecraft in 1947 in New Mexico. Entitled *the Day After Roswell* and written with William J. Birnes, with a Forward by Senator Strom Thurmond, Col. Corso described the top secret 'war' between the aliens and the United States military.

Corso started his military career as a draftee out of Pennsylvania, was chosen for Officer Candidate School, went on to Military Intelligence School and he ended up in Strategic Intelligence. He served on General MacArthur's staff in Korea and on President Dwight D. Eisenhower's White House National Security Council. As head of the Foreign Technology Desk at the U.S. Army Research and Development department in the Pentagon and under orders from Lt. Gen. Arthur G. Trudeau, Corso was entrusted with the military's greatest secret, a treasure trove of alien artefacts harvested from the crashed space craft.

His job was to study the devices and after establishing their purpose, hand them over to American companies involved with the military to integrate the technology into the military arsenal and the private business sector. In this way the United States was able to surpass the Russians in space, land men on the moon, and bring an end to the Cold War. Even more important, it changed the course of twentieth-century history. Our dependence on today's transistors, integrated circuit chips, fibre optics, lasers and super-tenacity fibres, all of it alien technology, created early twenty first-century civilization. However, Col. Corso was concerned that the aliens may have intentionally seeded our civilization with their technology for purposes known only to them.

Col. Corso's remarkable entanglement with extraterrestrials began unexpectedly on Sunday night, 6 July 1947, at Fort Riley, Kansas, the former home of Custer's 7th Cavalry, where he had his only encounter with a being not of this world. In his own words he writes; "The post duty sheet for that evening read that the veterinary building was off limits to everyone. Not even the sentries were allowed inside because whatever had been loaded in had been classified as "no access." ...I was the post duty officer and could go anywhere I wanted during the watch. So, I walked inside the old veterinary building, and saw where the cargo from the convoy had been stacked. There was no one in the building except for Bill Brown and me.

There were about thirty-odd wooden crates nailed shut and stacked together against the far wall of the building. ...I found an oblong box off to one side with a wide seam under the top that looked like it had been already opened. ...I picked up the top and slid it off to the edge....The contents, enclosed in a thick glass container, were submerged in a thick light blue liquid....But the object was floating, actually suspended, and not sitting on the bottom with a fluid over top, and it was soft and shiny as the underbelly of a fish. At first, I thought that it was a dead child they were shipping somewhere. But this was no child. It was a four-foot human-shaped figure with arms, bizarre-looking four-fingered hands – I didn't see a thumb – thin legs and feet, and a oversized incandescent lightbulb-shaped head that looked like it was floating over a balloon gondola for a chin. I know I must have cringed at first, but then I had the urge to pull off the top of the liquid container and touch the pale gray skin. But I couldn't tell whether it was skin because it also looked very like a very thin one-piece head-to-toe fabric covering the creature's flesh.

Its eyeballs must have been rolled way back in its head because I couldn't see any pupils or iris or anything that resembled a human eye. But the eye sockets themselves were oversized and almond shaped and pointed down to its tiny nose, which didn't really protrude from the skull. It was more like the tiny nose of a baby that never grew as the child grew, and it was mostly nostril. The creature's skull was overgrown to the point where all its facial features – such as they were – were arranged frontally, occupying only a small circle on the lower part of the head. The protruding ears of a human were nonexistent, its cheeks had no definition, and there were no eyebrows or any indication of facial hair. The creature had only a tiny flat slit for a mouth and it was completely closed, resembling more of a crease or indentation between the nose and the bottom of the chinless skull than a fully functioning orifice. I would find out years later how it communicated, but at that moment in Kansas, I could only stand there in shock over the clear nonhuman face suspended in front of me in a semi liquid preservative.

I could see no damage to the creature's body and no indication that it had been involved in any accident. There was no blood, its limbs seemed intact, and I could find no lacerations on the skin or through the gray fabric. I looked through the crate encasing the container of liquid for any paperwork or shipping invoice or anything that would describe the nature or origin of this thing. What I found was an intriguing Army Intelligence document describing the creature as an inhabitant of a craft that had crash-landed in Roswell, New Mexico, earlier that week and a routing manifest for this creature to the log-in officer at the Air Materiel Command at Wright Field and from him to the Walter Reed Army Hospital morgue's pathology section where, I suppose, the creature would be autopsied and stored..... The nightmare of the creature I saw at Fort Riley never faded from my memory, although I was able to bury it during my years as a guided-missile commander in Europe. And I never saw its body again the rest of my life except for the autopsy photos and the medical-examiner sketches that would catch up with me, along with the rest of what happened at Roswell, when I returned from Germany for assignment at the Pentagon in 1961”

That was when Col. Corso became head of the Foreign Technology Desk at the U.S. Army Research and Development department in the Pentagon and he had under his command the Roswell craft filing cabinet which contained the information as to what had occurred and how the information and the alien equipment had ended up in his office.

After the Roswell space ship crash, Central Intelligence group director Adm. Roscoe Hillenkoetter and Secretary of Defence James Forrestal briefed President Truman. General Nathan P. Twining dispatched the dead aliens to the Bethesda Naval Hospital and the Walter Reed Army Hospital for analysis by the two military services. The space craft was sent to Wright Field and the wreckage was distributed among the different military and civilian bureaus for analysis. They believed the aliens were hostile entities because if they were on a peaceful mission to Earth they would not have avoided contact by taking evasive manoeuvres even as they penetrated US airspace and hovered repeatedly over the US's most secret military installations.

Col. Corso wrote “We didn't know what the EBEs wanted at first, but we knew that between the cattle mutilations, surveillance of our secret weapons installations, reports of strange abductions of human beings, and their consistent buzzing of our unmanned and manned space launchers, the EBEs weren't just friendly visitors looking for a polite way to say “Hello, we mean you no harm”...From the very beginning of our endeavours to put satellites in orbit, the extraterrestrials have been surveilling and then actively interfering with our launch vehicles and in some cases the manned and unmanned payloads themselves by buzzing them, jamming radio transmissions, causing electrical problems with the spacecraft's systems, or causing mechanical malfunctions. American astronauts and Soviet cosmonauts have separately reported sightings of UFOs so routinely that it's become commonplace.

Fears of an attack to probe our planet's ability to defend itself were running rampant at National Security and through the military chiefs during the middle 1950s. After he retired from the army, even General Douglas MacArthur got into the fray, urging the military to prepare itself for what he felt would be the next major war. He told the *New York Times* in 1955 that "The nations of the world will have to unite for the next war will be an interplanetary war. The nations of the Earth must someday make a common front against attack by people from other planets." The public took little notice of that comment, but it was, in fact, a disclosure of the strategic thinking of the military back in the 1950s and explains part of the paranoia the government was displaying about all information relating to the flying saucers and unidentified aircraft.

They didn't just shadow or survey our space craft in orbit; they buzzed us and tried to create such havoc with our communications systems that NASA more than once had to rethink astronaut safety in the Mercury and Gemini programs. Years later, there was even some speculation among Army Intelligence analysts who had been out of the NASA strategy loop that the Apollo moon-landing program was ultimately abandoned because there was no way to protect the astronauts from possible alien threats.

The alien spacecraft were also aggressively buzzing our frontline defences in Eastern Europe...probing our radar to see how quickly we responded...Our only successes in defending against them, back in the late 1950s and early 1960s, occurred when we were able to get a firm tracking radar lock,...it somehow interfered with their navigational ability and the vehicle's flight became erratic. If we were especially fortunate and able to boost the signal before they broke away, we could bring them down. Sometimes we got lucky enough to score a hit with a missile before the UFO could take any evasive action, which an army defence battalion did with an antiaircraft missile near Ramstein Air Force Base in Germany in May 1974. The spacecraft managed to crash-land in a valley. The craft was retrieved and flown back to Nellis Air Force Base in Nevada.

They had a technology vastly superior to ours, which we had to study and exploit in case they turned more aggressive...So investigate first but prepare for the day when the whole undertaking would have to be disclosed. This President Truman could understand. He had trusted General Twining to manage this potential crisis from the moment Secretary of Defence James Forrestal had alerted him that the crash had taken place. And General Twinning had done a brilliant job. He kept the lid on the story and brought back everything that he could under one roof. President Truman understood as General Twinning described to him the strangeness of the spacecraft that seemed to have no engines, no fuel, nor any apparent methods of propulsion, yet outflowed our fastest fighters; the odd childlike creatures who were inside....But they possessed a military technology whose edges we could understand and exploit, even if only for self-defence against the Soviets.

As General Twinning had suggested in his report to the Army Air Forces, "foreign technology" was the category to which research on the alien artefacts from Roswell was to be delegated. Foreign technology was one of the great catch-all terms, encompassing everything from researching French air force engineering advances on helicopter blades to captured Russian MiGs flown in from Cuba...So what if a few pieces of technological debris from a strange crescent-shaped hovering wing turned up in an old file somewhere in the army's foreign technology files...besides, most foreign technology stuff was classified anyway because it dealt with weapon development we were hiding from the Soviets...

When the air force became a separate branch of the service, the remaining bodies, stored at Wright Field, along with the spacecraft, were sent to Norton Air Force Base in California, where the air force began experiments to replicate the technology of the vehicle. This made sense. The air force cared about the flight capabilities of the craft and how to build defences against it.

The Roswell filing cabinet had the alien autopsy reports that stated; “the organs, bones and skin are different from ours. The being’s heart and lungs are bigger than a human. The bones are thinner but seem stronger as if the atoms are aligned differently for a greater tensile strength. The skin also shows a different atomic alignment in a way that appears the skin is supposed to protect the vital organs from cosmic ray or wave action or gravitational forces that we don’t yet understand.”

Col. Corso wondered if “the Extraterrestrial Biological Entities (EBEs) who have fallen into our possession represent the end process of genetic engineering designed to adapt them to long space voyages within an electromagnetic wave environment at speeds which create physical conditions described by Einstein’s General Theory of Relativity.”

Col. Corso writes that “biological time, the Walter Reed medical examiners hypothesized, must have passed very slowly for the entity because it possessed a very slow metabolism, evidenced, they said, by the enormous capacities of the huge heart and lungs. The physiology of this thing indicated that this was not a creature whose body had to work hard to sustain it. A larger heart, my ME’s report read, meant that it took fewer beats than an average human heart to drive the thin, milky, almost lymphatic-like fluid through a limited, more primitive-looking, and apparently reduced-capacity circulatory system. As a result, the biological clock beat more slowly than a human’s and probably allowed the creature to travel great distances in a shorter biological time than humans.

...Because it functioned as a passive blood storage facility as well as a pumping muscle, it didn’t work the same way as did a four-chambered human heart. They said the alien heart seemed to have had internal diaphragm-like muscles that worked less hard than human heart muscle did because the creatures were meant to survive within a reduced gravity field as we understand gravity.

As camels store water, so did this creature store whatever atmosphere it breathed in the large capacity of its lungs. The lungs functioned in ways like our scuba tanks and released atmosphere very slowly into the creature’s system. Because of the large heart and the storage function we believe it had, we also surmised that it took far less breathable atmosphere to sustain the creature, thereby reducing the need for carrying large volumes of atmosphere along on the voyage... Moreover, because the creatures were only four or so feet tall, the large lungs occupied a far greater percentage of the chest cavity than human lungs did, further impressing the pathologists who examined the creature’s remains. This also indicted to us that perhaps we were dealing with an entity specifically engineered for long distance travel.

The creature’s bones looked to the army medical examiners to be fibrous, thinner than comparable human bones. Pathologists speculated that the bones were more flexible than human bones and had a resiliency that might be related to the function of shock absorbers...with a flexible skeletal frame; these entities appeared well suited for potential shocks and physical traumas of extreme forces and could withstand the fractures that would cripple human space travellers in a similar environment.

The military recovery team at the Roswell site had reported that the two creatures still alive after the crash had difficulty breathing our atmosphere.... My guess was that it was the alien’s sudden exposure to the earth’s gravity that caused the creature to panic at first. That could have been one reason his breathing seemed laboured...Of specific interest was the fluid that served as blood but also seemed to regulate bodily functions in much the same way glandular secretions do for the human body. In these biological entities, the blood system and the lymphatic systems seem to have been combined. And if an exchange of nutrients and waste occurred within their systems, that exchange could only have taken place through the creature’s skin or the outer protective

coverings they wore because there were no digestive or waste systems.

The medical report revealed that the creatures were enclosed within a one-piece protective covering like a jumpsuit or outer skin in which the atoms were aligned so as to provide a great tensile strength and flexibility...the creature's spacesuit or outer skin appeared to be stretched around it as if it were literally spun over the creature and seized up around it, providing a perfect skin-tight protective fit.

The lengthwise alignment of the fibers in the suit also prompted the medical analysts to suggest that the suit might have been capable of protecting the wearer against the low-energy cosmic rays that would routinely bombard any craft during a space journey. The interior organs of the creature seemed so fragile and oversized that the Walter Reed medical analysts imagined that without the suit the entity would have been vulnerable to the cumulative physical trauma from a constant energy particle bombardment...

The Walter Reed doctors were also fascinated by the nature of the creature's inner skin. It resembled...a thin layer of fatty tissue unlike any they had ever seen before. And it was completely permeable, as if it was constantly exchanging chemicals back and forth with the combination blood/lymphatic system. Was this the way the creatures nourished themselves during their journeys and was this how waste was processed? ...their hypothesis that they processed chemicals released from their skin and maybe even recirculated waste chemicals would have explained the lack of any food preparation or waste processing facilities on the craft. Another explanation, of course, suggested by the engineers at Wright Field, is that there would have been no need for food preparation facilities had this craft been only a small scout ship that didn't venture far from a larger craft.

Much of the attention during the preliminary and later autopsies of the creatures focused on the size, nature, and anatomy of their brains. Much credence also was given to the firsthand descriptions of on-scene witnesses who said they received impressions from the dying creature that it was suffering and in great pain. No one heard the creature make any sounds, so any impressions, Army Intelligence personnel assumed, would have been created through some type of empathic projection or outright mental telepathy. But witnesses said they heard no "words" in their mind, only the resonance of a shared or projected impression much simpler than a sentence but far more complex because they were able to share with the creature a sense not only of suffering but of profound sadness, as if it was mourning for the others who perished on board the craft.

The medical examiners believed that the alien brain, way oversized in comparison with the human brain and in proportion to the creature's tiny stature, had four distinct sections. The creatures were dead and the brains had begun to decompose by the time they were removed from the soft spongy skulls that felt to the doctors more like palatal cartilage than the hard bone of a human cranium....The medical examiner wrote that measurements of brain activity taken from the EBE, who was still barely alive at Roswell showed that its electronic signature..displayed a signal similar to what we would call long, low-frequency waves. And the examiner referred to a description by one of the Roswell Army Air Field doctors that the creature's brain lobes seem to have been not just physiologically and neurologically integrated but integrated by an electromagnetic current as well."

The army's foreign technology files were full of the alien craft's technology and Col. Corso described what he found; "tiny, clear, single-filament, flexible glasslike wires twisted together through a kind of gray harness as if they were cables going into a junction. They were narrow filaments, thinner than copper wire. As I held the harness of strands up to the light from my desk, I could see an eerie glow coming through them as if they were conducting the faint light and

breaking it up into different colors.... As I turned the object over in my hand, I figured, from the way the individual filaments flexed back and forth but didn't break and the way they were able to conduct a light beam along their length, they were a wire of some sort. But for what purpose I didn't have a clue.

Members of the retrieval team who foraged around inside the spacecraft on the morning of the discovery told Colonel Blanchard back at the 509th that they were amazed they couldn't find any conventional wiring. "Where were the electrical connections?" they asked, because obviously the vehicle had electronics. They didn't understand the function of the printed circuit wafers they found, but, even more important, they were completely mystified by the single glass filaments that ran through the panels of the ship.... This was one of the physical mysteries of the Roswell craft that stayed hidden through the 1950s until one of the Signal Corps liaisons, who routinely briefed General Trudeau on the kinds of developments the Signal Corps was looking for, told us about experiments in optical fibers going on at Bell Labs.

Then there were the thin two-inch around matte gray oyster cracker-shaped wafers of a material that looked like plastic but had tiny road maps of wires barely raised / etched along the surface. They were the size of a twenty-five-cent piece, but the etchings on the surface reminded me of squashed insects with their hundred legs spread out at right angles from a flat body. Some were more rounded or elliptical. It was a circuit – anyone could figure that out by 1961, especially when you put it under a magnifying glass – but from the way these wafers were stacked on each other, this was a circuitry unlike any other I had ever seen. I couldn't figure out how to plug it in and what kind of current it carried, but it was clearly a wire circuitry of a sort that came from a larger board of wafers on board the flying craft.

I was most interested in the file descriptions accompanying a two-piece set of dark elliptical eyepieces as thin as skin. The Walter Reed pathologists said they adhered to the lenses of the extraterrestrial creature's eyes and seemed to reflect existing light, even what looked like complete darkness, to illuminate and intensify images in the darkness to allow their wearer to pick up shapes.

There was a dull, grayish-silvery foil-like swatch of cloth among these artefacts that you could not fold, bend, tear, or wad up but that bounded right back into its original shape without any creases. It was a metallic fiber with physical characteristics that would later be called "supertenacity," but when I tried to cut it with scissors, the arms just slid right off without making even a nick in the fibers. If you tried to stretch it, it bounced back, but I noticed that all the threads seemed to be going in one direction. When I tried to stretch it widthwise instead of lengthwise, it looked like the fibers had reoriented themselves to the direction I was pulling in. This couldn't be cloth, but it obviously wasn't metal. It was a combination, to my unscientific eye, of a cloth woven with metal strands that had the drape and malleability of a fabric and the strength and resistance of a metal...

Clearly, when the scientists at Roswell saw how this fiber – something like a ceramic – had encased the ship and formed the outer skin layer of the EBEs, they realised it was a very promising avenue for research.... Our research and development liaison in the Medical Corps told me that the replication of a supertenacity fiber was still years away back in 1962, but that any help from Foreign Technology that we could give the Medical Corps would find its way to the companies they were working with and probably wouldn't require a separate R&D budget. There was a written description and a sketch of another device, too, like a short, stubby flashlight almost with a self-contained power source that was nothing at all like a battery. The scientists at Wright Field who examined it said they couldn't see the beam of light shoot out of it, but when they pointed the pencil-like flashlight at a wall, they could see a tiny circle of red light... When they passed an object in front of the source of the light, it interrupted it, but the beam was so

intense the object began smoking. They played with this device a lot before they realised that it was an alien cutting device like a blowtorch. One time they floated smoke across the light and suddenly the whole beam took shape. What had been invisible suddenly had a round, microthin, tunnel-like shape to it. Why did the inhabitants of this craft have a cutting device like this aboard their ship? It wasn't until later, when I read military reports of cattle mutilations in which entire organs were removed without any visible trauma to the surrounding cell tissue, that I realised that the light-beam cutting torch I thought was in the Roswell file was actually a surgical implement, just like a scalpel, that was being used by the aliens in medical experiments on our livestock.

We believed that the EBEs used lasers for navigation, by bouncing beams off distant objects in space and homing in on them to triangulate a course; for communication, by using the laser beam as a carrier signal or as a signal in and of itself; for surveillance, by painting potential targets with a beam; and for power transmission, illumination and even data storage. The strength and integrity of the laser beam should have served as the EBEs primary method of communication over vast distances or even as a way of storing communications in packages for later delivery.

Then there was the strangest device of all, a headband, almost, with electrical-signal pickup devices on either side....Embedded by some very advanced kind of vulcanizing process into a form of flexible plastic were what we now know to have been electrical conductors or sensors, similar to the conductors of an electroencephalograph or polygraph. This band was fitted around the part of the alien cranium just above the ears where the skull began to expand to accommodate the large brain....more than one officer at the 509th gingerly slipped this thing over his head and tried to figure out what it did...In their descriptions of the headband, these officers reported everything from a low tingling sensation inside their heads to a searing headache and a brief array of either dancing or exploding colors on the insides of their eyelids as they rotated the device around their head and brought the sensors into contact with different parts of their skull.

These eyewitness reports suggested to me that the sensors stimulated different parts of the brain while at the same time exchanged information with the brain. Again, using the analogy of an EEG, these devices were a very sophisticated mechanism for translating the electrical impulses inside the creature's brains into specific commands. Perhaps these headband devices comprised the pilot interface of the ship's navigational and propulsion system combined with a long-range communications device. At first, I didn't know, but it was only when we began development of the long brain-wave research project towards the end of my tenure at the Pentagon that I realized just what we had and how it might be developed. It took a long time to harvest this technology, but fifty years after Roswell, versions of these devices eventually became a component of the navigational control system for some of the army's most sophisticated helicopters and will soon be on the American consumer electronics market as user-input devices for personal computer games.

The first Army Air Force analysts and engineers both at the 509th and at Wright Field were also bedevilled by the lack of any traditional controls and propulsion system in the crashed vehicle... I imagined that the keys to understanding what made the craft go and directed its flight lay not only within the craft itself but in the relationship between the pilots and the craft. If we hypothesized a brain-wave guidance system that was as specific to the pilots' electronic signature as it was to the spacecraft's, then we were looking at an entirely revolutionary concept of guided flight in which the pilot *was* the system. Imagine transportation devices in which the key to the ignition is a digitized code derived from your electroencephalographic signature and is read automatically upon your donning some sort of sensorized headband. That's the way I believed the spacecraft was navigated, by direct interaction between the electronic waves generated within the minds of the pilots and the craft's directional controls. The electronic brain signals were interpreted and transmitted by the headband devices, which served as interfaces.

Experiments were carried out at Norton and ultimately at Nellis Air Force Base in Nevada, at the famous Groom Lake site where the Stealth technology was developed....experiments in replicated alien craft continued to be carried on through the years as engineers tried to adapt the propulsion and navigation systems to our level of technology.

The craft was able to displace gravity through the propagation of magnetic wave, controlled by shifting the magnetic poles around the craft so as to control, or vector, not a propulsion system but the repulsion force of like charges...The air force discovered that the entire vehicle functioned just like a giant capacitor. In other words, the craft itself stored the energy necessary to propagate the magnetic wave that elevated it, allowed it to achieve escape velocity from the earth's gravity, and enabled it to achieve speeds of over seven thousand miles per hour. The pilots weren't affected by the tremendous g-forces that build up in the acceleration of conventional air craft because to aliens inside, it was as if gravity was being folded around the outside of the wave that enveloped the craft...But how did the pilots interface with the wave form they were generating?

I reported to General Trudeau that the secret to this system could be found in the single-piece skin-tight coveralls spun around the creatures. The lengthwise atomic alignment of the strange fabric was a clue to me that somehow the pilots became part of the electrical storage and generation of the craft itself. They didn't just pilot or navigate the vehicle; they *became* part of the electrical circuitry of the vehicle, vectoring it in a way similar to the way you order a voluntary muscle to move. The vehicle was simply an extension of their own bodies because it was tied into their neurological systems in ways that even today, we are just beginning to utilize. So the creatures were able to survive extended periods living inside a high-energy wave by becoming the primary circuit in control of the wave. They were protected by their suits, which enclosed them head to feet, but their suits enable them to become one with the vehicle, literally part of the wave.

In those draws I had found the puzzle pieces for a whole new age of technology. Things that were only twinkles in the minds of engineers and scientists were right here in front of me as hard, cold artefacts of an advanced culture. Craft that navigated by brain waves and floated on a wave of electromagnetic energy, creatures who looked through devices that helped them turn night into day, and beams of light so narrow and focussed you couldn't see them until they bounced off an object far away...right in front of us, was the evidence of how an alien culture had adapted itself to long-range space travel, different gravities, and the exposure to energy particles and waves crashing into a space craft by the billions. All we had to do was marshal the vast array of resources in the military and industry at R&D's disposal and harvest that technology. It was all laid out for us, if we knew how to use it. This was the beginning and I was at the cusp of it. For each of the items General Trudeau...found the names of scientist working on Government defence projects...I wasn't surprised to see Wernher Van Braun turn up under every rocket-propulsion issue. Van Braun had gone on record in 1959 by announcing that the U.S. military had acquired a new technology as a result of top-secret research in unidentified flying objects. Nor was I surprised to see John von Neumann's name next to the mention of the strange-looking silver-imprinted silicon wafers...Because he was already knowledgeable about the Roswell debris, Dr. Robert Sarbacher was another obvious candidate for an Army R&D brain trust. We also listed Dr Wilbert Smith... who had learned of the U.S. investigation from Sarbacher, he said that regardless whether UFOs fit into our belief system or not, the fact was we had acquired them, and it was important for us to harvest the technology they contained.

..Night vision was the first project we actually seeded during the first year of my tenure at Foreign Technology....By the time I brought the Roswell night viewer to Fort Belvoir, it fit right in through the seam of an existing development program and no one was the wiser...The reverse-engineering of solid-state integrated circuitry began in the weeks and months after the crash even though William Shockley at Bell Labs was already working on a version of his transistor as early

as 1946....The army, very covertly, turned some of the components over to research engineers for an inspection, and by the early 1950s the transistor had been invented and transistorized circuits were now turning up in consumer products as well as in military electronics systems.

The era of the vacuum tube, the single piece of eighty-year –old technology upon which an entire generation of communications devices including television and digital computers was built, was now coming to a close with the discovery in the desert of an entirely new technology....Thus, within months after the Roswell crash and the first exposure of the silicon-wafer technology to companies already involved in the research and development of computers, the limitations on the size and power of the computer dropped..and the next generation of computers went into development...More than one historian of the microcomputer age has written that no one before 1947 foresaw the invention of the transistor or ever dreamed about an entirely new technology that relied upon semiconductors, which were silicon based and not carbon based like the Edison incandescent tube.”

First public face to face communication between extraterrestrials and humans

The first public contact between humans and extraterrestrials may have occurred on the 20th November 1952 near Desert Centre, U.S.A. with amateur astronomer George Adamski. This contact was initiated by the extraterrestrials and included the public appearance of a giant elongated space craft or ‘mother ship’, a smaller bell-shaped craft or ‘scout ship.’ An hour-long communication ensued, a symbolic message was left, and everything took place within view of multiple witnesses included anthropologist Dr Williamson and military personnel in aircraft.

George Adamski had been requested by military personnel to attempt to take photographs of mysterious aircraft, public incidents of which were rapidly increasing in the San Diego area. Adamski did not believe space travel was possible and thought that the craft observed could only be aircraft developed by his own country, until advised otherwise. Military personnel enlisted his help because he was the only person available with a mobile six-inch telescope and an attachable camera and lived in the best location to obtain photographs. Copies of all Adamski photos and the information received from the extraterrestrials were sent to the military and published in newspapers, books and he spoke at length at public meetings.

On 9 October 1946 amateur astronomer and retired teacher George Adamski and a group of friends, while watching a meteor shower from their home at Palomar Gardens, California, all saw what appeared to be a gigantic black airship high in the sky. Believing that it was a new type of aircraft that had been developed during the war, they saw it raise its nose upwards and quickly shot up into space leaving a fiery trail which remained for five minutes. On returning inside the house and turning on the radio they were surprised to hear the announcer mention that hundreds of people had reported observing a large cigar-shaped space ship.

A few weeks later in a cafe during a conversation with people, who had also observed the craft, George Adamski was making the point that it must have been a dirigible and not a space craft because conditions in space were too dangerous and the distances were too great for space travel to be a reality. Six military officers at an adjoining table spoke up and stated “It is not as fantastic as it sounds. We know something about this” and assured them that the ship they had seen was not of this world. After that encounter, Adamski began to study the night skies even more intensely and eventually was rewarded with a remarkable observation. With four other persons they counted 184 brightly illuminated objects moving across the sky from east to west in single file and as they banked towards the south, they noticed what appeared to be a ring around a central dome. The last one stopped and shot out two powerful beams of light before continuing its way.

The next day a Soil Conservation employee who also lived in a trailer at Palomar Gardens, Tony Belmont, told Adamski that he had been, the night before, at the Dempsey Ranch in Pauma Valley on the western side of Palomar, with a group of men sitting outside. Together they had counted 204 flying objects in single file, which he believed must be U.S. government experimental craft. Two scientists from the Hale Observatory, eleven miles further up Mount Palomar and home to the 200-inch telescope, called into the Palomar Gardens cafe and divulged that they had counted more than 200 of the craft and that they did not belong to the government.

Adamski was asked by the military, by Mr. J.P. Maxfield and Mr. G.L. Bloom of the Point Loma Navy Electronics Laboratory near San Diego, to try to photograph the strange craft because he was known to be a knowledgeable and dedicated amateur astronomer with two telescopes that were more manoeuvrable than the big telescope at the Hale Observatory, which was also trying to photograph the ships. They advised that keeping his telescopes aimed at the moon was most likely to produce results and eventually he did obtain two photographs of an object moving in front of the moon which he handed over to the officers.

Adamski lived at Palomar Gardens because at an elevation of 3000 feet (915 metres) and clear viewing in all directions it provided him with perfect conditions for astronomy. Adamski was determined to obtain good photographs and watched the skies through his telescopes continually and often viewed white spots far out in space which appeared to be space ships. Over time he noticed that these space craft seemed to be moving closer to Earth and in increasing numbers. He noticed that the space craft were coming in closer during foggy and stormy weather and at such times they occasionally dropped below the clouds.

He took over seven hundred photographs, some showed well outlined forms but not much detail and only eighteen were excellent. The camera he used was a Hagee-Dresden-Graphlex, a specialized astronomer's camera that had no lens and photographs could only be taken using the lens of a telescope. Consequently, it was not possible to take hoax photographs of models or any nearby objects. Other people living at Palomar Gardens who were interested in his work regularly helped him and viewed the craft through his telescopes.

The Air Force had publicly asked all citizens to report any sightings made or photographs taken and Adamski did exactly that. Adamski was told by Mr. G.L. Bloom that the government had detailed knowledge of what was taking place but were forced to cover it up because superstitious and religious people went into a terrible panic whenever they were confronted with the truth that humans were not the only intelligent beings in existence.

During 1951 and 1952 Adamski made many trips further west into the desert because he had heard that increasing numbers of low-level flights and even landings of strange craft were being reported from those areas, though he never saw anything himself. Other people were also becoming interested and Mr and Mrs A.C. Bailey of Winslow, Arizona and anthropologist Dr and Mrs George H. Williamson of Prescott, Arizona had agreed to join George Adamski on such expeditions. With Mrs Alice K. Wells, owner of Palomar Gardens and cafe and his secretary Mrs Lucy McGinnis they all met on the 20th November 1952 at Blythe, drove to Desert Centre and continued towards Parker, Arizona.

Eleven miles (17.7km) down the road they stopped for a picnic in the desert and just after noon were surprised to observe a gigantic cigar-shaped silvery craft without wings. It was orange on top and the sun reflected brightly off its sides, as it drifted noiselessly above the closest mountain ridge. They had time to view it with binoculars and then drove down the road for half a mile (800m) and then turned off onto a track and drove on for another half mile to the base of a flat-topped low hill where George thought was the best place to set up his six-inch telescope, tripod and camera. All this time the large craft was high above them and then some planes arrived and

appeared to be trying to approach the mystery craft and it moved away beyond the mountain ridge.

George asked the others to go back to the road and leave him there alone so that there were fewer disturbances in case the craft returned, but to keep him under observation. Five minutes later a small craft drifted through a saddle between two mountain peaks and settled half a mile from George and he began taking photographs. Then he noticed a man standing at the entrance of a ravine between two low hills a quarter of a mile away who was motioning him to approach. Thinking the man to be a prospector or geologist, perhaps needing help, he approached the man while looking around to assure himself that his companions had both under observation.

He walked up to the man, who took four steps towards George, was smiling, and he noticed that the strange man was smaller than himself, about five feet, six inches in height, weighed about 135 pounds and he looked considerably younger, estimating him to be about 28 years old. He had a round face with an extremely high forehead; large grey-green eyes, slightly aslant at the outer corners; high cheek bones, finely chiselled nose, normal mouth with white teeth. He had no hair or stubble on his face, looked more like a child's face that had never needed to shave and his skin colour was of a medium-coloured suntan. His hair was long, sandy coloured and hung to his shoulders, and it blew about in the desert wind. His body and hands were slender with long tapering fingers.

He wore a one-piece garment resembling a uniform, chocolate brown in colour, of a very fine woven material, without seems, zippers, buttons, buckles, fasteners or pockets. It did not appear to be satin, silk or rayon and it had more of radiance than sheen. It had close-fitting high turtle-neck-like collar, long sleeves and trousers with close-fitting bands around the wrists and ankles. There was an 8 inches wide band that circled his waist, above and below this were one and a half inch strips that were brighter than the rest of his uniform, a golden brown. He wore soft flexible blunt-toed shoes with low heels, about size 9 or so, deep red in colour with openings on the outer side between the arch and the heel with two narrow straps.

He extended his hand as if to shake but instead of grasping George's extended hand, he placed the palm of his hand against Adamski's hand, just touching it, which felt warm, firm but delicate. George had decided that this man could only have come from the strange craft previously observed so asked him where he came from, twice, but he received no answer. Then he wondered if the strange man communicated telepathically, so George imagined a picture of a planet in his mind, pointed at the sun, circled the sun with his finger three times while stating "Mercury, Venus" and then "Earth" and pointed at the ground. He did this twice before he received a response. To this the man smiled and he also pointed to the sun, made two orbits of it with his right index finger and touched himself with his left hand.

George asked, "Do you mean you come from Venus." The strange man nodded his head and with a voice higher pitched than an adult man he spoke the word "Venus." George then asked, "Why are you coming to Earth?" along with gestures and mental pictures. The man pointed to the heat waves rising from the desert. George asked him if his concern was with explosions of nuclear weapons and radio activity. He replied with the word "yes" and gestured with his hands to indicate atom bomb clouds, then stated "boom! Boom!" then touched George, touched a nearby plant, pointed to the earth and swept his hands wide as if to indicate everything could be destroyed.

He pointed behind them and it was then that George first saw the bell-like craft hovering behind the nearby low hill and laughed at George's surprise. George asked if he had come directly from Venus in that craft. The man shook his head in the negative and with gestures made George understand that the small craft had come inside the larger craft observed earlier. George decided

that the man could receive his mental images when he thought of planes and an aircraft carrier and again the man nodded. George asked if the Air Force planes that had approached the large craft earlier on were a concern and again the man nodded.

George asked, “how does your ship operate and by what power?” The man replied by picking up a small rock and dropping it twice. George picked up two pebbles and put them together and spoke the word “magnetic.” Again, the man replied “yes, magnetic.” George asked about little discs that had been reported and the man gestured that they were remotely-controlled observation craft. George asked if he believed in God and the man indicated that humans understood little about the universe. George asked if there would be any more landings and the reply in gestures was that there had been many in the past and that there would many in the future.

George asked, “Are space people coming only from Venus and the man replied in gestures “from many places”. George asked if any of their people had died coming to Earth and he replied “yes”. George asked if men of this world had been responsible for such deaths and again, he replied “yes”. Asked why they never land in populated places the reply was that it would create too much fear but that eventually it would be possible. George asked if he could take a photograph of the man, but the reply was negative.

George asked if any Earth people had been taken away in space craft and he replied “yes”. George asked how many planets were inhabited by people and the man indicated large numbers throughout the universe. George asked if these people died like Earth people and he indicated in the positive by pointing to himself and nodded, then pointed to his head and shook his head in the negative. Then he pointed to himself and indicated that he had once lived on Earth and now lived in space.

Speaking then in his own language he pointed to his feet and made three sets of deep, distinct footprints in the soil. Then motioning for George to follow him they walked side-by-side to the waiting ship, which was hovering silently about 6 feet above the ground, though only 2 feet above the soil at the rear, where the ground rose up towards the low hill. Strong gusts of wind seemed to cause the craft to wobble at times. It was shaped like a heavy translucent glass bell and within it George could see a shadowy form of someone inside. When the craft wobbled, the sun reflected off the surface causing prismatic rays of light to reflect out from it, reminding George of a smoky diamond.

The craft was circular in shape with a glowing ball or lens above the dome. At the base of the dome was a ring of heavy coil built into it and beneath it were transparent portholes in the side wall with another similar coil built into its base. Both glowed as if there was power running through them. Below the flat side wall with the portholes, the craft expanded out in four concentric rings and finished with a flange. Underneath the craft was a small central dome pointing down and it was surrounded by the landing gear, composed of three large balls, half lowered below the edge of the outer flange.

For a moment George saw a face very similar to the man that he had been communicating with at one of the portholes. As they approached the craft the man warned George not to get too close, but he continued absorbed by all that he saw, then turned to move away. His right shoulder projected slightly below the outer edge of the flange as he did so and instantly an invisible force dragged his arm up then threw it back down against his body. Although he could move his arm, he had no feeling in it for the next three months.

George reached into his pocket to check that his photographic plates were undamaged, and the man reached out and indicated that he would like to have one of them. George offered the stack to him and the man took the top one and placed it within his blouse, though George did not see

any opening. George asked if he could enter the craft and was refused. The man then walked around the back of the craft and onto the sloping bank and stepped onto the flange of the craft which then began to silently rise and move away. As the craft turned George saw a small opening in the centre of the flange being closed by what looked like a sliding door. Beneath the craft George could see two rings beneath the outer flange and an inner ring around the central disc or up-side-down dome. The outermost ring and the innermost ring were revolving clockwise while the middle ring was revolving in a counter clockwise motion.

Mr and Mrs Bailey, Dr and Mrs Williamson, Mrs Wells and Mrs McGinnis had observed Adamski talking and walking with the man and had observed the craft. The U.S. military was also aware of what had taken place and several aircraft including a B-36 came circling overhead as Adamski's companions rejoined him and together examined and took plaster casts of the man's footprints. The soles of his shoes left very clear symbols in the fine soil as if a message was being delivered.

On 24 November the *Phoenix Gazette* published the encounter with photos and sketches. At 9.00 a.m. on 13 December 1952 Adamski saw a similar iridescent glass-like craft reflecting sunlight as it came in from the ocean until it was 2000 to 3000 feet (600 to 900 metres) away and 300 to 500 feet (90 to 150 metres) above the valley. It hovered motionless and Adamski was able to take four close-up photographs of it through his telescope. He estimated the craft to be about 35 to 36 feet (11 metres) in diameter and about 15 to 20 feet (4.5 to 6 metres) high. The craft then approached Adamski to within 100 feet (30 metres) and he was able to observe a porthole open and a hand that extended and then dropped the photographic plate, most likely the plate carried away on 20 November.

The craft then continued north towards the base of the mountain slope where it was observed and photographed by other witnesses that Adamski had alerted. He took the photographic plate to Carlsbad Photography, Mr and Mrs D.J. Detwiler, who developed and printed all Adamski's photos.

George Adamski recounts what happened, next in his book *Flying Saucers Have Landed*. "At my request, representatives of two government agencies came up to see me. These men listened intently to my detailed description of all that had taken place, but they registered no surprise. Nor did they express any doubt regarding the truthfulness of my statements. They did not even question me. These men were highly intelligent men and well poised and it may be part of their jobs to display no reaction towards anything reported to them. But my reaction to their attitude was that they realised I was giving them just another report of a type of happening not unfamiliar to them."

Six hundred published UFO landing reports were subsequently recorded between 1952 and 1969 in the book *The Humanoids* edited by Charles Bowen using the research gathered by Aime Michel, Jacques Vallée, Gordon Creighton, Coral Lorenzen, Antonia Ribera and Charles Bowen.

One of the earliest happened in the spring of 1952, four miles inside the Russian Zone of East Germany, where 48 year-old ex-mayor Linke and his 11 year-old daughter Gabrielle were travelling on a motor-cycle through the forest during the twilight near the village of Hasselbach, Meiningen, when the back tyre was punctured. Pushing the bike quietly along the road they came upon two human-like figures examining something in the vegetation. Leaving his daughter with the bike, the father carefully approached to see what was going on. The weird figures were covered in a silvery shimmering material and one of them had a flashing light on his chest. Behind them he noticed an enormous, squat, circular object that was 50 to 60 feet in diameter that had a conning tower on top and a double row of foot-wide holes, 18 inches apart around the side of the object.

On hearing Gabrielle calling to her father asking what it was, the two figures hurried back to the craft and scrambled up the dark central tower beneath the object and disappeared inside it. The outer rim began to glow changing from bluey green to red and it appeared to be spinning around like a top with a faint humming sound. The saucer appeared to rise up on its own conning tower until it resembled a mushroom on a stalk. The conning tower appeared to retract and returned to its original position on top as the craft gained speed and altitude with a faint whistling noise. A sawmill watchman and a shepherd half a mile away independently reported seeing a comet-like object flash away from the hill at the same time where Linke and Gabrielle had their encounter with what they thought was a new Russian aircraft or weapon.

The encounter became known after Linke had escaped out of East Germany to Allied territory and revealed his information before a judge in a sworn statement.

Forty-three years after the publication of *The Humanoids* the war between humans and aliens continues unabated, still unknown to most of the general public. Jack Shulman, head of the American Computer Company and one of the owners of the Technology International Group and Bell North America, worked on the development of the personal computer in 1978, developed the first windowing operating system in 1975 for Citibank and developed the “pattern creator” from where we got the term “PC.” He grew up in central New Jersey and lived at the household of the head of Bell Labs, Jack Morton, went to school and college with his son and consequently grew up around the various projects of Bell Laboratories in the late 1960s and early 1970s.

Shulman got involved in technology because he had the opportunity to get to know some of the head researchers of AT &T and Bell Labs, people mentioned by Col. Philip J. Corso in his 1997 book *The Day After Roswell*. William Shockley, Bob Noyce and Jack Kilby, credited with the invention of the integrated circuit, were frequent friends of Jack Morton’s household. In 1995 a long-time friend, who was at one time one of the very well known generals in the Pentagon and a member of the Joint Chiefs of Staff, gave Jack Shulman some documents and asked him to analyse the technology described and determine for him their veracity.

It included 28 boxes of material that had come from Western Electric and Bell Laboratories including Lab Shopkeeper’s Notebooks almost fifty years old that described technology not yet developed, such as special metals to produce moving parts for anti-gravity propulsion units. They included dynamic electronic, power control and communication technology described only as having been taken from an object of unknown or unearthly origin.

Jack Shulman and his board decided to include information from the Lab Shopkeeper’s Notebooks on their American Computer Company website asking, “Did AT&T receive stolen alien technologies from the US Government in 1947 and thereby invent the transistor, the laser and the integrated circuit?” Three days later their tech support fax machine began receiving top secret, five level clearance, live messages from an orbital Defence Space Platform called Sky Station, a nuclear-hardened Star Wars SDI series platform equipped to carry nuclear weapons. Then their offices were broken into and everything taken out of the filing cabinets, followed by day-long interviews by the Air Force Office of Special Investigations.

Instead of backing off, Jack Shulman created a website called American Computer Company Special Investigation and claims to have developed two of the devices in the Lab Shopkeeper’s Notebooks. One of these is a Transfer Capacitor, a metal-insulated dielectric junction semiconductor based on silver alkane. Jack Shulman also claims to have received from Senator Kennedy information on a Lincoln Labs funded development project for an offensive weapon, a laser canon needed urgently for the Deep Space 4 probe.

Is there really a war between humans and extraterrestrials? It is possible that is the belief amongst certain members of the military. The extraterrestrials, if they really exist, might not regard it as a war. To them it may be a simple interrelationship between space-living biological entities with terrestrial biological entities. The EBEs may have been living in our solar system for millennia, taking advantage of a rare living planet and its biological resources, particularly its DNA. Finally, the more intelligent terrestrial entities are becoming more aware of the activities of the extraterrestrial entities.

The evidence seems to show that there may be many species of EBEs visiting our planet. Whether the human-like ETs are true extraterrestrials, an example of convergent evolution, in which unrelated animals adapting to environmental pressures eventually end up resembling each other, as is common on Earth, or humans that have long ago been abducted and integrated into the extraterrestrial community, is yet to be determined.

We only have one detailed published description of an extraterrestrial biological entity described by an author, Col. Philip J. Corso, the former Pentagon Official who published his memoirs in 1997, detailing the discovery of intelligent extraterrestrial life forms and the retrieval of a crashed spacecraft in 1947 in New Mexico. From this published description we can attempt to classify a species that appears to be fully adapted to life in space. I wrote an article in the *Australian UFOlogist, Bimonthly Magazine for Australian and New Zealand UFO Research* Volume 7, No. 4, 2003, entitled 'A Classification of Extraterrestrials Based on Contact Accounts' classifying this species as; Kingdom; Animalides, Phylum; Chordatides, Class; Mammalides, Order; Primatides Family: Juxtahominidae.

Roswell Humanoid, (*Homoides roswellensis*) (Roswell Resembling Man)

First published description by Corso, Philip J. and Birnes, William J. 1997, *The Day After Roswell*, Pocket Books, Simon & Schuster Inc., New York, USA, detailing the discovery of intelligent extraterrestrial life forms and the retrieval of a crashed spacecraft in 1947 in New Mexico.

A 1.5 m tall humanoid with a large bald head, large eyes, small concave nose with 2 nostrils, thin lipless mouth devoid of teeth but with tough gums and an ear hole on each side of the head with a tiny lob. The longest part of the arm is between the elbow and the wrist and the hand has 4 long slender fingers with a small hollow at the tip of each creating a suction pad. At 11.30 pm a crescent shaped aircraft of this species was observed to crash and bodies obtained.

References

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