

Apes, Angels, and Virtual Reality

A Theory of the Origin of *Homo Sapiens*

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ABSTRACT

Today, most scientists try to explain the origin of *Homo sapiens* by the neo-Darwinian theory of evolution, even though this theory suffers from several well-known problems. The ancient astronaut theory is a popular alternative account of human origins that avoids some of these problems. But this theory also runs into serious difficulties.

We can trace the drawbacks of neo-Darwinism and the ancient astronaut theory to our conception of the laws of nature. By enlarging our understanding of these laws, we can open the way to a new theoretical perspective. This leads to a modified form of the ancient astronaut theory which I present in the concluding sections of this paper.

The new theory is based on the application of certain key principles of computer science to nature as a whole. Computer science is a highly reductionistic field, but it turns out that it can help us understand many phenomena that are generally rejected by scientists as physically impossible. These include the supernatural phenomena connected with mystical beings in ancient religious texts. By combining insights from computer science with ancient and contemporary evidence for the existence of paranormal phenomena and mystical beings, we can build the conceptual and empirical basis for a new theory of human origins.

1. DEFECTS OF THE NEO-DARWINIAN THEORY OF EVOLUTION

The presently accepted version of Darwin's theory of evolution is technically known as the synthetic theory, and it was created in the late 1940's by combining Darwin's original ideas with modern genetics. Although the theory does explain many patterns running through the world of life, it suffers from a number of drawbacks that have been repeatedly pointed out by critics. Three of these involve (1) the high information content of living organisms, (2) the existence of organs of great perfection, and (3) the systematic lack of intermediate forms between species.

All three of these drawbacks show up in the case of *Homo sapiens*. First of all, to write down the genetic coding for a typical mammalian cell would require some 786,000 pages written in the four-letter genetic code. Some of this information may be useless "junk," but if even 10% is significant, it poses a serious problem for the theory of evolution.

Information theory shows that nature, following the known laws of physics, can generate large amounts of random information—commonly known as random noise. But nature

is highly unlikely to generate a specific complex structure of high information content (Thompson, 1981).

Evolution is often portrayed as a progressive process that leads inexorably from lower forms of life to higher forms, culminating in ourselves. But information theory shows that the evolution of *Homo sapiens* by neo-Darwinian evolution is no more likely than a monkey writing a Shakespearean sonnet by pounding on a typewriter.

Organs of great perfection pose a related problem. Consider the human brain. Alfred Russell Wallace is famous for anticipating Charles Darwin's theory of evolution by natural selection. But Wallace pointed out that, "Natural selection could only have endowed savage man with a brain a few degrees superior to that of an ape, whereas he actually possesses one very little inferior to that of a philosopher" (1895, p. 202).

How did this come about? If we consider the amount of information needed to define the human brain and reflect that natural processes can produce this information only by chance, we can see that neo-Darwinian theory cannot give a satisfactory answer to this question.

The lack of intermediate forms between species has haunted the theory of evolution since Darwin's day, and it also shows up in the case of *Homo sapiens*. The standard scenario of human evolution involves several species of *Australopithecus*, as well as *Homo habilis*, *Homo erectus*, *Homo sapiens neanderthalensis*, and *Homo sapiens sapiens*. These species are separated by large gaps in physical form and in presumed mental capacity.

In particular, there seems to be a tremendous gap in mental ability between the exuberant artistic and technological creativity of *Homo sapiens sapiens* and the static, crudely utilitarian cultural achievements of his supposed ancestors. How was this gap bridged? Here again, Darwinian theory gives no answer.

2. THE ANCIENT ASTRONAUT THEORY

The ancient astronaut theory offers one solution to these problems. In its most general form, this theory maintains that evolution on the earth has been modified or guided by the action of intelligent extraterrestrial beings.

Initially, one might be tempted to dismiss this theory out of hand as a science fiction fantasy. However, the defects of the standard theory of evolution are sufficiently severe that several prominent scientists have embraced some version of the theory of extraterrestrial intervention. For example, the Nobel-prize winning biochemist Frances Crick proposed that the first living cells on the earth were bacteria seeded by spaceships from a doomed planet (Crick, 1981).

The astrophysicist Fred Hoyle and his colleague Candra Wickramasinghe (1981) proposed that intelligently programmed bacteria are continuously raining down from outer space and modifying the earthly gene pool by gene transplantation during infections. These ET bacteria are disseminated throughout the universe by a higher controlling intelligence. Hoyle and Wickramasinghe maintain that the entire course of earthly evolution was intelligently guided by a continuing infusion of extraterrestrial genes over a period of hundreds of millions of years.

The most well-known form of the ancient astronaut theory deals specifically with the origin of modern human beings. Stripped down to its essentials, it says that extraterrestrials landed on the earth in spaceships and created *Homo sapiens sapiens* by genetically modifying

an existing semi-human species. The advanced capacities of the modern human brain were therefore brought about by intelligent intervention.

The Israeli scholar Zecharia Sitchin (1976) is well known for a version of this theory based on his interpretation of ancient Sumerian and Babylonian texts. Since Sitchin's theory is one of the most popular alternatives to the standard scientific theory of human evolution, I will discuss it in some detail here.

Sitchin proposes that humanlike beings called the Nefilim first landed on the earth in spaceships about 450,000 years ago. They were engaged in mining for minerals, but their workers eventually mutinied due to arduous working conditions in the mines. The leaders of the Nefilim decided to solve this problem by creating a slave race to do the mining work for them. As stated in an ancient text,

They summoned and asked the goddess,
The midwife of the gods, the wise Mami,
"You are the Birth Goddess, create workers!
Create a Primitive Worker,
That he may bear the yoke!
Let him bear the yoke assigned by Enlil,
Let the Worker carry the toil of the gods!" (Sitchin, 1976, p. 334)

According to Sitchin, this was done by genetically modifying *Homo erectus*. By combining the genes of *Homo erectus* with their own genes, the Nefilim "bound the image of the gods" on the ape-man and thereby created *Homo sapiens*. He thinks this was done about 300,000 years ago (Sitchin, 1976, p. 340).

The process of genetic manipulation apparently involved the physical birth of human babies from Nefilim mothers. Furthermore, the resulting human race was close enough genetically to the Nefilim for Nefilim males to impregnate human women (Sitchin, 1976, p. 348). This is reflected in the famous Bible passage in which the Nefilim (called "Giants" in the King James version) thought the daughters of men were fair and conceived offspring of great renown in their wombs.

How could an earthly creature be made similar enough to ETs to mate with them and produce offspring? Sitchin's answer is that the planet of the Nefilim (the "Twelfth Planet") once collided with a planet orbiting between Mars and Jupiter and thereby produced the earth and the asteroid belt. He argues that "During their celestial collision, their planet had seeded Earth with its life. Therefore, the being that was available was really akin to the Nefilim—though in a less evolved form" (Sitchin, 1976, p. 344).

A planetary collision would probably destroy life on both planets. But even if such a collision could transfer primitive organisms from one planet to another, the random element in neo-Darwinian evolution makes it extremely improbable that humanlike beings would subsequently evolve on both planets.

The prominent evolutionist Theodosius Dobzhansky addressed this issue. He asked whether *Homo sapiens* would be likely to evolve again if we could return the earth and its living species to their exact condition 55 million years ago and then let time again move forward. Dobzhansky estimated that mutations and other changes in some 50,000 genes would be required for the development of modern humans from their primate ancestors of that remote period (Dobzhansky, 1972). Since each genetic change is but one out of a large number of alternatives, the probability is virtually zero that the changes would occur and be selected

in the same sequence as they were in human evolutionary history.

Small deviations in the sequence of changes could throw the evolution of prehuman creatures off the track to humankind. Deviations in the evolution of other plants and animals in the prehuman environment could also derail human evolution, and so could deviations of the earth's climate from its actual climatic history. Dobzhansky concluded that the chances were vanishingly small that anything humanlike would evolve on his backdated earth. The famous evolutionist George Gaylord Simpson came to similar conclusions (Simpson, 1964, p. 259).

Of course, one could argue that a process of parallel evolution might take place. For example, the marsupial 'wolves' of Australia are somewhat similar to ordinary wolves, even though they are thought to have an independent evolutionary history. However, their reproductive systems are completely different from those of ordinary wolves, and they are not at all genetically compatible with them. In contrast, geneticists maintain that modern human genes are 99% equivalent to the genes of chimpanzees (Dawkins, 1986, p. 263). If ETs can mate with humans, then ET genes must also be quite similar to those of chimpanzees. If the chimpanzees are a pure product of earthly evolution, then this is contrary to Dobzhansky and Simpson.

One might argue that the chimpanzee is also a product of genetic manipulation by ETs. But the same might be said of other animals, and where do we draw the line? If we suppose that all living species are products of ET manipulation, then the ETs become something more than mere space travelers with advanced knowledge of genetics. I will return to this point later. But first we should ask whether or not the ancient Near-eastern texts really speak of genetic engineering by extraterrestrials.

3. PROBLEMS IN TEXTUAL INTERPRETATION

The ancient Sumerian and Babylonian texts are written in long-forgotten languages, and they are difficult to interpret. Many interpretations are possible, and the standard scholarly translations of these texts make no mention of the ancient astronaut scenario.

Even proponents of the ancient astronaut theory differ substantially in their interpretation of the texts. For example, Christian O'Brien (1985) has also interpreted these texts using the idea of ancient astronauts, but he thinks the visiting ETs crossbred with Cro-Magnon man in 8,196 B.C. rather than with *Homo erectus* in 300,000 B.C. He agrees with Sitchin that the breeding was done in response to an insurrection among the ET workers, but he maintains that these workers were farmers rather than miners.

O'Brien agrees with Sitchin that genetic manipulation was involved in the crossbreeding process, but neither he nor Sitchin gives explicit quotations about genetics from the ancient texts. The best that Sitchin can do is argue that

If the "clay" onto which the godly element was mixed was an earthly element--as all texts insist--then the only possible conclusion is that the male sperm of a god--his genetic material--was inserted into the egg of an ape-woman! (Sitchin, 1976, p. 357)

Unfortunately, it is quite a jump to go from clay to a hominid ovum. Both Sitchin and O'Brien are taking their ideas about genes and evolving hominids from modern scientific theories—not from ancient Near-eastern texts.

So what becomes of the ancient astronaut theory? The key to O'Brien's and Sitchin's method is to demythologize the old texts by replacing "supernatural" motifs, such as creation

from clay, with ideas drawn from 20th century science. However, the supernatural is defined in relation to our conception of nature. What seems supernatural from one viewpoint may seem quite commonplace from another. By examining closely some new developments in our understanding of the laws of nature, we can find a new way of looking at ancient texts that preserves essential features of the ancient astronaut theory and at the same time avoids its most serious drawbacks.

4. THE LAWS OF NATURE

Darwin's concept of nature was directly based on classical, Newtonian physics. At the end of his *Origin of Species*, he wrote,

There is grandeur in this view of life... that, whilst this planet has gone cycling on according to the fixed law of gravity, from so simple a beginning endless forms most beautiful and most wonderful have been, and are being evolved (Darwin, 1962, pp. 484-85).

Classical physics seemed to remove intelligence and purpose from nature, and Darwin's theory can be seen as an effort to explain how unintelligent physical processes can produce living beings. Indeed, if we accept the mechanistic world view of classical physics, it is hard to imagine any other explanation of the origin of species.

In the 20th century, quantum mechanics has replaced classical mechanics as the dominant theory of physics. Although some scientists have tried to introduce a mystical element into quantum mechanics (Zukav, 1979), this theory is also generally thought to deny a guiding role for intelligence in nature.

But with the advent of computer science, an entirely new view of nature has become possible. Ironically, this development began with the construction of computers that operate deterministically according to the classical laws of electromagnetism. This led to two ideas—simulation and artificial intelligence—which allow for the reintroduction of intelligence and purpose into nature.

In 1950 the British mathematician Alan Turing envisioned a computer that could pass the test of simulating human behavior so well that it could consistently fool human judges (Turing, 1950). Turing reasoned that a machine that could pass this "Turing test" would capture the essence of the human mind. His underlying idea was that a computer simulation, if it is exact enough, is as good as the original.

In recent years the idea of "virtual reality" has added a new twist to this idea. In a virtual reality, a real-world environment is simulated by a computer, and the senses of an observer/participant are linked to the simulation by some interface apparatus (Rheingold, 1991). This interface allows the observer to experience the virtual reality through the senses of a virtual body that operates within the simulated environment.

Many observers can be inserted into a virtual reality. If it is a sufficiently exact imitation of the real world, then the observers will have the same experiences in the virtual reality that they would have in the real world. By Turing's reasoning, such a virtual reality is as good as the real world.

At present, virtual reality simulations are quite crude. But one can imagine a perfected virtual reality in which observers are linked to virtual bodies endowed with advanced artificial

intelligence, highly developed senses, and detailed corporal forms. Indeed, we can go further and imagine a high-quality simulation of an entire universe. In principle, such a simulation is possible, given a computer with sufficient information processing capacity.

These ideas lead to the conclusion that the world we live in might be a simulation run on a computer with universal information processing capacity and nearly unlimited "artificial" intelligence. Although this idea might seem bizarre, it is based firmly on the established principles of computer science. If it is true, then nature has an underlying basis in high-level intelligence and information processing.

5. COMPUTERS AND THEOLOGY

The astrophysicist Frank Tipler has elaborated ideas along these lines in a book on the physics of God, heaven, and the resurrection of the dead (Tipler, 1994). Tipler's argument is that, in the future, evolutionary processes will cause all of the matter in the universe to organize itself into a vast computer that he calls the Omega Point. In his model, the universe will end in a "big crunch" at some finite future time. By extracting power from the collapsing universe as it approaches the final crunch, the universal computer will be able to carry out infinitely many computational steps before the universe ends. (For example, it might carry out n steps in the next to the last second before the crunch, another n steps in the following half second, another n in the following quarter second, and so on to infinity.)

With this unlimited computing power, the Omega Point will be able to resurrect all the persons who ever lived through computer simulation and provide them with eternal heavenly life. Tipler proposes that the promised heaven of Christian theology will become a reality with the evolution of the ultimate universal computer.

Although Tipler's ideas are highly speculative, some useful points can be extracted from them. His analysis is based on strict adherence to physical reductionism and Turing's thesis that mind can be simulated by a computer. He explicitly rejects any principles lying outside the scope of modern physics and computer science. Yet he shows that the entire supernatural scenario of Christian eschatology can be logically built up within this reductionistic framework. So, at the very least, we should think twice before rejecting something out of hand as "supernatural."

Tipler's Omega Point includes angels. He says that, "It would certainly not be too inaccurate to regard one of the superprograms of the universal mind in the far future, one with a Turing Test-passing subprogram, as an 'angel'" (Tipler, 1994, p. 157). He envisions such a superprogram as an interface which the Omega Point can use to communicate with the resurrected humans of the future. Direct communication between a human and the Omega Point itself would be beyond human capacity in his opinion, and thus the superprograms would play the same role in his system as the angelic messengers of Judeo-Christian tradition.

Tipler prefers to keep the Omega Point in the distant future. He says that "there is no evidence that our level of reality is not the ultimate level of reality" (Tipler, 1994, p. 320). However, one of the main implications of the idea of universal computer simulation is that we cannot directly observe the ultimate basis of reality. If a perfect simulation of our world is possible, then it follows that we may be living in such a simulation. In that case, we cannot observe the computer which is running the simulation. Apart from the conclusion that such a computer must have vast computing power, we cannot say anything about it. (In particular, we cannot say whether it originated according to Tipler's theory or in some other way.)

Although this is not a very encouraging conclusion, we should also consider another possibility. It could be that we live in a simulation which includes communication interfaces similar to Tipler's angelic superprograms. In normal, day-to-day life, this simulated world operates according to the familiar laws of nature. But when the universal computer wants to interact with persons who are within the simulation, this is done through the agency of an angelic superprogram. When this happens, it may seem that miracles occur, although everything is running, as always, according to the laws of the universal computer.

6. THE STATUS OF MIRACLES

These observations may shed light on ancient religious texts which speak of the creation of earthly life by powerful beings. Before returning to this topic, however, we should first examine some contemporary testimony regarding such beings. Such testimony often mentions apparently miraculous events.

In keeping with his theory that the Omega Point belongs in the future, Tipler strictly rejects miracles. He cites David Hume's story of a cathedral doorkeeper who claimed to have regrown a leg by rubbing holy oil on the stump. Tipler said, "According to a Catholic cardinal who reported the event, the regrowth was attested to by large numbers of people in town, including all the canons of the cathedral. Neither the cardinal, Hume, nor I believe that this regrowth occurred" (Tipler, 1994, p. 310).

It turns out, however, that there is very strong evidence for the reality of at least some events of this nature. An example is story of Vittorio Michelli, who suffered from a bone cancer which totally destroyed the ball-and-socket joint on the left side of his hip. This is the joint where the upper end of the thigh bone articulates with the hip. Michelli's condition was well documented by medical doctors, who used x-rays and up-to-date medical tests in their diagnosis.

In 1963, Michelli visited the shrine of the Virgin Mary at Lourdes in southern France in hopes of being cured. He testified that after being bathed in the sacred springs at the shrine, he experienced sensations of heat moving through his body, followed by an amazing resurgence of energy. Within two months, he was able to walk again, and physicians testified that his ball-and-socket joint had regrown. One physician commented,

A remarkable reconstruction of the iliac bone and cavity has taken place. The x-rays made in 1964 -5, -8 and -9 confirm categorically and without doubt that an unforeseen and even overwhelming bone reconstruction has taken place of a type unknown in the annals of world medicine. We ourselves, during a university and hospital career of over 45 years spent largely in the study of tumors and neoplasms of all kinds of bone structures and having ourselves treated hundreds of such cases, have never encountered a single spontaneous bone reconstruction of such a nature (O'Regan, 1991, p. 51).

There are many well-attested cures of this nature, and some of them involve sudden recovery from grave bodily conditions. One example involves Serge Perrin, who suffered from a chronic neurological disorder which culminated in frequent seizures, blindness in the left eye, and an inability to walk (Mouren, 1976). This condition was diagnosed as organic rather than psychological, and it involved defects in the arteries supplying blood to the brain.

Perrin's condition deteriorated steadily for several years, and by 1970 he was confined to a wheelchair and in need of constant care. During a visit to Lourdes in that year, Perrin reported feeling a sudden sensation of warmth in his lower limbs while attending a church ceremony. Within a few minutes he was able to walk. On leaving the church, he found that with his right eye covered he could read signs on the opposite side of the square with his left eye. Medical examination showed that his neurological condition was completely cured, and he remained in good health for several years. Several medical doctors connected with Perrin's case noted that his cure was medically inexplicable.

7. ENCOUNTERS WITH SHINING BEINGS

Reports of miraculous healings frequently involve luminous beings. Lourdes, of course, is the site of a reported apparition of the Virgin Mary, which took place in 1858. The Virgin Mary is typically described as brilliantly glowing and her appearances are often associated with miraculous cures. She is said to exhibit a beautiful human form to those who see her. However, she is typically visible only to selected persons, and she may appear or disappear abruptly. Generally, she is seen floating in midair.

Many contemporary accounts of miraculous healings involve shining beings who are not identified with a particular religious tradition. An example is the case of Hans Poulsen, a British musician who was dying of cancer. Poulsen testified that he had the following experience during a ceremony performed by a healer:

A timelessness seemed to just descend around me. It was the most powerful experience, I think, I've ever felt in my life. ... Before me, out of this effulgent light, light was flooding the room from all around me, forming two radiant circles of gold, one within the other with light in colors flooding from them. A presence silent and serene was speaking to me. Much was said, only some of which I consciously remember. Yet I feel what was transferred still guides my life today. Yes, I was acknowledging: I do give you permission. Wave after wave of the most exquisite sensation poured in through the top of my head cascading through my body and out to the souls of my feet. The being spoke without words... (Poulsen, 1992).

After this experience, Poulsen was found by medical doctors to be free of the cancer. Of course, cancers do sometimes clear up for no known reason. This is known as spontaneous remission (O'Regan and Hirshberg, 1993). But what is the significance of Poulsen's experience with the shining being at the time of his cure?

I raised this question with Dr. Daniel Benor, an American psychiatrist who studies paranormal healing in England. Benor commented that the such beings are frequently associated with unusual cures. The beings may be directly perceived by the patient, or they may work through the healer. When asked whether he thought such beings were imaginary or real, Benor was quite open to the possibility that they are real.

Reports of shining beings are also common in near-death experiences. By definition, a near-death experience occurs when a person's body is severely affected by some traumatic condition. In many cases, the person experiences out-of-body travel through a tunnel, followed

by emergence into a brightly lit landscape where an encounter with a shining being may occur (Ring, 1985). As in Poulsen's experience, the witness often reports receiving knowledge that can be remembered only partially. This is a common feature of encounters with shining beings in general.

Reports of UFO close encounters contain many references to beings called "humanoids" that are often accompanied by unusual manifestations of light (Thompson, 1993). These beings range in shape from grotesque, large-headed dwarfs to fully human forms that are sometimes described as Nordic in appearance. Like the beings appearing in religious visions, UFO humanoids are reported to levitate, to pass through solid walls, and to appear and disappear abruptly. They behave in many ways as though they were projections of some kind. Yet when they are present, they seem to be as solid and physically real as a human body.

UFO close encounter witnesses frequently report receiving knowledge that they cannot fully remember, and they sometimes report being cured of various diseases during their encounters. There are also reports of witnesses being injured or afflicted with serious diseases.

8. SHINING BEINGS IN ANCIENT TEXTS

There are many references to shining beings in ancient religious scriptures. The demigods of the Vedic tradition in India are called Devas, a word that means Shining Ones. Christian O'Brien interprets the Hebrew word Elohim as having the same meaning, and he gives many examples of words related to El in ancient languages, all of which designate a shining being (O'Brien, 1985, p. 27).

To illustrate ancient ideas about the appearance of the Shining Ones, O'Brien cited one of the apocryphal texts about the patriarch Enoch. There Lamech, the father of Noah, commented to Enoch about Noah's appearance when he was newborn: "He is not like you and me—his eyes are like the rays of the Sun and his face shines. It seems to me that he is not born of my stock, but of that of the Angels..." (O'Brien, 1985, p. 163).

The shining beings of Sumerian tradition appeared before people in religious visions similar to those reported today. Thus king Gudea of Lagash reported receiving instructions on how to build a temple from "a man that shone like the heaven" (Sitchin, 1976, p. 26).

Such beings would often appear suddenly. For example, the Bible recounts the story of a meeting between Abraham and three angels. Abraham "raised his eyes and, lo and behold, there were three men standing by him" (Sitchin, 1976, p. 133). Although two of the men were angels (and one turned out to be the Lord Himself), they ate, drank, and slept in Abraham's house like ordinary humans. Stories of this kind appear in many ancient traditions, and they are particularly common in the Vedic tradition of India.

The spaceships of the Shining Ones play an important role in the ancient astronaut theory, and they are referred to in many ancient texts. The *vimanas* of ancient India are a notable example of this (Kanjilal, 1985). UFOs can be seen as contemporary examples of these spaceships (Thompson, 1993). It is noteworthy that UFOs are famous for abruptly appearing and disappearing and for making maneuvers that seem to violate the laws of physics.

Frank Tipler has noted some of the salient features of the Shining Ones. He remarked that "The computer simulation resurrection body would naturally have three superhuman features which Jesus' resurrection body as described in Luke also has" (Tipler, 1994, p. 244). These are (1) the ability to change form (or apparent form) at will, (2) the ability to disappear abruptly in one place and appear in another, and (3) the property of being "as real as anything else in the

simulation." The third feature includes the ability to eat and drink like an ordinary human being. (Tipler believes that Luke got these ideas from Hebrew angel lore rather than from actual testimony about the Jesus.)

9. THE PROCESS OF CREATION

The features ascribed to the Shining Ones in all cultures include the following: (1) real physical presence, (2) shape changing ability, (3) power of appearance and disappearance, (4) effulgent appearance or unusual emission of light, (5) ability to cure and cause severe diseases, (6) power over the forces of nature, (7) ability to mate with humans, and (8) ability to create species. Since these beings are consistently described in cultures all over the world, it is reasonable to think that they might be real. Yet arguments based on feature (7) show that they could not have evolved independently on another planet. Let us consider the possibility that these beings may be part of a world simulated by a universal computer. As Tipler points out, properties (1)-(3) are possible in a simulated world. The same is true of (4). Properties (5) and (6) are easy to explain if the Shining Ones are linked up with a universal information and control system. In that case, restoring a damaged organ or summoning a storm might be as easy for them as "clicking" on an icon in a word processor is for us.

Properties (7) and (8) bring us back to the ancient astronaut theory. If some of the Shining Ones are linked up with full information regarding the human body, then they could easily impose that information on gross matter to produce manifest bodies. This would simply be a more extreme form of the process of restoring severely damaged organs.

The old Mesopotamian creation stories all say that the essence of the gods was imposed on clay. We can interpret this quite literally in the following way: Information can be expressed in many forms, such as handwriting, radio signals, or DNA coding. Let us suppose that information defining the human form was translated by the universal computer into the language of common earthly molecules. We can look at the language of molecules, comprising what we call chemistry, as one of many languages used by the universal computer. (Keep in mind that in this model, molecules are also virtual and thus they are informational constructs.)

Once the translation into this language was made, "compiling" the resulting code to create a manifest human body could easily be done by the universal computer, using earthly matter, or "clay," as a source of molecules. The role of the Shining Ones would simply be to act as "smart terminals" that carry out instructions emanating from the universal control system. Since the Shining Ones are endowed with great intelligence, this comparison with modern-day computer terminals is perhaps a bit misleading. However, it does convey the idea that the Shining Ones act primarily as conduits for information generated by an intelligence much greater than their own. They can also be compared to human prophets who are traditionally regarded as mediums for the transmission of divine revelation.

If human bodies and genomes were created by executing standard software, the same software could enable the Shining Ones to mate with humans and create viable offspring. It is simply a matter of systematic control of genetic information originating in the universal computer.

Of course, if human genetic coding was generated by the universal computer, then we are still faced with the question of how it is that chimpanzees are genetically very similar to humans. To be consistent, we must propose that all earthly genetic systems have received input from the universal computer. This leads to a theory of the origin of species which overcomes the three

problems with Darwin's theory that I mentioned in the beginning of this paper. This new theory can be called the universal form theory, since it proposes that all biological form arises from a universal reservoir of information under intelligent control.

High information content is not a problem for this theory, since it assumes that information from the universal computer has been injected into the genomes of earthly species. Organs of high perfection are to be expected, since the universal computer could presumably design optimal organs for a given task. Of course, this does not imply that there should be no imperfect organs, since these may also have a role to play in nature. Finally, the systematic absence of intermediate forms can be accounted for by the fact that the universal computer can abruptly introduce new species.

10. CONSCIOUSNESS AND ULTIMATE ORIGINS

One objection to the universal form theory is that it does not account for the origin of the universal computer. Of course, one possibility is that we are already in Tipler's future, and the universal computer is a product of cosmic evolution. Another answer is that the universal computer has knowledge about its own origin, and some of this knowledge may have been transmitted to humans in the past. This brings up the possibility that so-called revealed knowledge may in some cases be more than simply a product of the human mind.

If we examine various bodies of revealed knowledge, we repeatedly encounter the idea that the ultimate cause of all phenomena is a Supreme Conscious Being that cannot be understood in material terms. It is not unreasonable to suppose that a universal computer might be produced from the thoughts of such a Supreme Being.

Although this explanation might seem to reduce everything to an ultimate mystery, it should be kept in mind that, in one sense, it doesn't matter what a computer is made of. Our familiar computers of today are made largely of silicon chips carrying integrated circuits. But the essence of a computer is logical and informational, and a computer could be made of pure thought.

It should also be pointed out that consciousness has to be taken into account in any theory of human origins. Thus far I have glossed over the distinction between two important ideas about consciousness. The first idea holds that if a computer duplicates human mental functions, then it will be endowed with human consciousness by virtue of this alone. The second holds that the individual steps executed by a computer are devoid of consciousness and so is the sum total of these steps. Therefore, consciousness has to be added to the computer system as an extra element.

Both of these ideas have been extensively debated by philosophers and scientists, but it would take us too far afield to enter into this debate here. My own view is that consciousness is an extra element that is not reducible to matter. Individual consciousness is linked to the (virtual) body and mind in the same way that an observer/participant is linked to a virtual body in a virtual reality system. It is also possible that Supreme Consciousness is similarly linked to the universal computer as a whole. In contrast, Tipler holds that a suitably organized computer will be conscious by itself.

If consciousness is an extra element added to the universal simulation, then free will can be defined as decisions made by the conscious observer/participant. This leads to the idea that some conscious beings may be willing to freely serve the universal control system and the Supreme Consciousness that lies behind it, and others may not. Those that are willing to serve

may be favored by being linked up to software and information provided by the universal computer, and those who are unwilling may be cut off from this higher source. Ideas along these lines show up repeatedly in ancient traditions associated with the Shining Beings. For example, angels in Judeo-Christian tradition are depicted as empowered beings that willingly serve the Supreme.

Another idea found in traditions of the Shining Beings is that the individual conscious self may be able to obtain liberation from entanglement in matter. This concept is particularly well developed in the Vedic tradition of India (Prabhupada, 1983). In the model presented here, this corresponds to an observer/participant in a virtual reality system who disconnects from the virtual reality and returns to "actual reality." Many ancient traditions teach that the virtual world of Maya, or illusion, can be transcended by techniques involving the elevation of consciousness.

11.CONCLUSION

The ancient astronaut theory is an explanation of human origins based on ancient records seen through the eyes of modern technological expectations. The theory holds that thousands of years ago, technically advanced extraterrestrials visited the earth in spaceships and created *Homo sapiens sapiens* by genetically modifying an existing proto-human species. Unfortunately, this theory suffers from serious flaws caused by its dependence on the neo-Darwinian theory of evolution.

The alternative theory presented here avoids these flaws while retaining the essence of the ancient astronaut theory. The astronauts themselves are seen to belong to a larger category of luminous, humanlike beings that are repeatedly described in ancient traditions and in modern experience. Scholars often dismiss some of the unusual powers attributed to these beings because they do not seem to conform to our technological expectations. However, a straightforward extrapolation of modern computer science provides a way of understanding these powers.

By applying basic ideas of computer science to nature as a whole, we can formulate a theory which views the ancient astronauts as beings linked to a universal computer. This called the theory of universal form.

This theory enables us to understand the traditional creation of man from clay as the systematic organization of earthly molecules under the direction of a universal computer system underlying nature. Modern-day miraculous cures may involve a similar process. The ancient astronauts and their modern counterparts are sentient beings who can tap into this computer system and thereby perform actions that seem miraculous.

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