

juxtaposed with location Y' in B via a discontinuity, information could be transmitted from X to X', then to Y', and finally back from Y' to Y. *The result would be that information available to an observer at X could be immediately available to an observer at Y even though X and Y are widely separated. In this example, X and Y could be points separated in either space or time.*

Thus although all of us are familiar with the remarkable work on remote-viewing published by Puthoff and Targ¹³ in which information was apparently communicated ("telepathically") over several miles between a travelling party and a subject, few may remember that there was also reported a repetition of those experiments in which the communication apparently took place *backward in time as well as across space*. In the slightly varied experiment, the viewing party delayed the random selection of the target and the travel to the target until after the subject had concluded giving information about the target. The results were just as good as in the earlier experiments in which the communication was across space instead of across time. Although the latter results may be less believable than the earlier, the two sets of experimental results may depend on similar properties of time and space.

The Mental Component

There is very limited but suggestive evidence that the transmission of telepathic signals is not limited by the velocity of light. If other spaces admit of different fields corresponding roughly to our electromagnetic fields, there may be two fields that could carry information via wave. The puzzle is how a mind, human or otherwise, could be coupled to these waves.

There are many instances reported in which forces are produced that seem under the mental control of UFO occupants, and seem to be unassociated with any machinery. In these matters we might well take note of the psychokinetic abilities reported for human subjects. Evidence of psychokinesis is probably the least believed of the esoteric evidence from investigations into the strange, yet, though based on fewer experiments than are reported for other kinds of psychic phenomena, is just as well established. Uri Geller is not the only subject in which this has been demonstrated (*I am aware of many of the detracting state-*

ments made by "magicians", etc. regarding Geller, but believe instead reports by competent scientists who have observed the effect under rigidly controlled circumstances). In Geller's book *My Story*¹⁴ he reports his own experiences in such a way as to seem almost naive in its candor, *leaving me at least to the conclusion that what he reports might just be true — no reasonably intelligent person would have the nerve to report such experiences were they not true.*

At the moment, however, I cannot see how psychokinesis can be brought into any of the above esoteric theories. Psychokinetic events would have to depend on gravitation-like influences on this-world masses (the theories described above do not allow interaction other than those due to gravity), which would have to be originated or controlled by mind-power. *However, if this is at all possible, and mind-power can be sufficiently strong, there may be some basis to speculations that UFOs could be propelled by the concentrated psychokinetic efforts of their occupants.*

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THE DEBATE ON EXTRATERRESTRIAL LIFE "HOTS UP" AND SCIENTIST CLAIMS OUR GALAXY IS DOMINATED BY A SUPERIOR CIVILISATION

Paul Whitehead, FSR Consultant

THE buzz of speculation that our Galaxy is host to millions or many billions of civilisations has reached new heights on both sides of the Atlantic. Fuelled partly by new publicity about alleged Close Encounters and Cover-Ups, and partly by new findings which reveal there may be many habitable planets just a few light-years from Earth, public interest in UFOs is at its highest for many years.

Leaving aside the interesting efforts by the American soap opera *"The Colbys"* to revive its flagging

audience figures by having a leading character abducted by a UFO (a reflection of the huge interest shown in abduction cases in the States), we should not forget that there is a serious side to the entire extraterrestrial debate.

Consider this sentence, which is published in *"The Cambridge Atlas of Astronomy"*, in a section of the extraterrestrial life debate:— *"Another theory, that of the 'galactic zoo' formulated by J.A. Ball, seeks to explain why contact has never been realised by suggesting that*

one civilisation would dominate the Galaxy and prevent communication between the planetary 'cages'."

FSR has been criticised in the recent past for proposing such a scenario, yet FSR's mailbag proves that many readers (among them some prominent names) fully support the theory. Now the *Cambridge Atlas of Astronomy**, which is introduced by Sir Bernard Lovell and written by 44 astronomers and scientists, includes the above passage that supports the FSR view.

The Scottish astronomer Prof Archie Roy, who believes we may be under observation, has added his voice yet again to the "believers" in extraterrestrial life.

Speaking recently on BBC Radio 4, he said there may be 10 billion stars with habitable planets in our galaxy. This figure is based on a discovery by Canadian astronomers which shows that half the Earth's nearby sun-like stars may have planets.

Crucial Support

The discovery, according to *The Observer* newspaper (July 7th 1987), "provides crucial support for scientists who believe that planetary systems, and life, are common in our Universe."

In the past, the search for other worlds has been hampered by two factors. First, planets are tiny objects compared with stars (the Sun, for instance, is 300,000 times more massive than the Earth). Second, planets do not shine — they only reflect light dimly from stars.

But Dr Bruce Campbell and his colleagues got round this problem by using high resolution spectroscopy to measure accurately variations in a star's light. Slight differences in a star's light showed that many were being pushed and pulled out of their paths by unseen planets.

The astronomers' results, published in a recent issue of *Science*, revealed that of 16 nearby stars, two (*Epsilon Eridani* and *Gamma Cephei*) were definitely being affected by large bodies in orbit around them. Of the rest, five or six also appeared to have unseen companions.

The companions are almost certainly planets. According to Prof. Roy, they include some very large bodies hundreds of times bigger than the Earth, and, very likely, also some earth-size.

This research will receive a boost when two important space projects get under way in a few years. The Space Telescope and a European satellite called *Hipparchus* will both be launched and will vastly increase scientists' powers to detect variations in stars' motions caused by orbiting planets.

"In addition," *The Observer* stated, "a programme called Search For Extraterrestrial Intelligence (SETI) will concentrate on studying radio waves from stars thought to be harbouring life-supporting planets."

Prof. Roy thinks we will discover life by the end of the century. "*We may find life is widespread throughout the Universe — and that will have profound religious and philosophical implications,*" he said.

Other Forms of Life

Not everyone involved in SETI believes we will find life as we know it. Freeman Dyson and Frank Drake, in the *Cambridge Atlas of Astronomy*, have proposed a bizarre form of life, based on the nuclear force that binds protons to neutrons inside atomic nuclei. It is not related to the electromagnetic forces involved in chemical reactions.

This form of life could emerge on the surface of a neutron star where the nuclear force is capable of fashioning stable structures constructed from a number of nucleons, ranging from one (the nucleus of the hydrogen atom) to 238 (comprising the 92 protons and 146 neutrons in the nucleus of uranium 238). Each "being", or form of life, will seem to itself to live for a long time. But to us, if we were to encounter it, its lifetime would be an extremely minute fraction of a second (10^{-15} second)...

Life could evolve in the form of very complex and heavy nuclei, capable of reproduction and interacting methodically with its environment, say Dyson and Drake. "If such a life ever appeared its evolution should be proportionately more rapid than ours because its timescale is so much shorter than ours..."

"Since about a billion years were required for the generation of life on Earth, it should take only about $1/30$ second for the transformation of inert matter in 'nuclear' life on the surface of a neutron star. Members of such ephemeral civilisations should measure about 10^{-11} centimetres long and live approximately 10^{-15} second."

Another form of life, highlighted in the same book, is one based on crystals.

Jean Schneider of Meudon Observatory proposes a crystalline form of life based on the complex structure that dislocation networks can adapt in the interior of crystals. Such networks can be stable, very elaborate and capable of producing other networks inside the same crystal.

"This form of life is nourished by mechanical energy — such as that furnished by shock vibrations," says the *Cambridge Atlas of Astronomy*. "If such a life form exists, it could develop inside solid bodies subject to mechanical stresses, as in the interior of planets, in white dwarf stars or in neutron stars."

Carl Sagan proposes that conditions are right for life at least vaguely resembling life as we know it to evolve on other planets in our Solar System. The atmospheres of Saturn and Jupiter are an ideal "soup" for the formation of organic compounds. "Indeed, the rich colours there are probably due to these compounds," says the book. It adds that there are areas of their atmospheres where life could have evolved because of the favourable temperatures in them.

"That is why Carl Sagan is prepared to imagine life forms coasting in their atmospheres, rather like jellyfish in our oceans."

Life on Titan?

Amazingly, conditions are also ripe for life on such satellites as Titan (Saturn's largest satellite). Despite its low temperatures, "this bizarre world seems a promising place for the emergence of some form of life." It is very much like Earth was long ago, and its colours indicate the possible presence of life. Organic compounds have been detected there. Its oceans of liquid methane, and showers of the same substance forming streams on the planet's surface, are apparently a good omen for finding life there.

The Cambridge Atlas postulates that there may be 20 billion planets in our Galaxy on which life may have appeared.

UFOs and Contact

The *Atlas* addresses these points (and FSR gave some coverage to what it has to say on this subject, in a recent issue, Vol. 32, No. 1).

The full and revealing text on the UFO question as

given in the *Cambridge Atlas* is now printed in FSR for the first time. Here it is:-

"The question of UFOs is a delicate one because the problem has never been precisely defined and, more often than not, the available information has been provided by untrained observers.

"Because of that, some scientists refuse to discuss the subject on the grounds that it is irrational, *but one may ask whether it is not possible that blunt refusal to examine a question that deeply interests so many people is itself irrational.*

"It is a very complex subject. Several official investigations conducted both in the USA and USSR reported that, while they were satisfied that UFOs do not exist, *there were incidents they could not explain* (an interesting contradiction! — Editor). *Similarly, those scientists who have seriously studied the records admit that there are aspects of the UFO phenomenon that they do not understand.*

"As a result, in several countries there are associations studying this *problem.*"

The *Atlas* goes on to discuss how we are attempting to make contact with other civilisations via radio transmission, and then asks why no contact has been made if indeed there is a lot of life in space.

We are now back to the earlier part of this article, in which J.A. Ball formulated his "galactic zoo" theory. One contributor to the *Atlas* said that by travelling at just 1/10th the speed of light, an advanced species could colonise our galaxy in a mere 1 million years. The *Atlas* points out that because the species has not manifested itself to us, then this obviously has not happened.

(There is a lack of understanding and insight by some scientists in this field. While we welcome this fairly balanced though still questionable discussion on UFOs, we can only plead with people like Prof. Archie Roy to speak up and protest that, *yes they may be here, but they don't necessarily want to contact us!* We know that Prof. Roy and others believe that — Editor.)

Having arrived here, where would such an alien species reside? In the Asteroid Belt, of course! That theory (it is not a new one) is suggested by Michael Papagiannis, who suggests extraterrestrials are concealing themselves in the Asteroid Belt.

Meanwhile, Sagan and William Newman say that a number of civilisations could exist in our Galaxy without contacting one another.

Note by Editor, FSR

Some of us connected with FSR are certainly inclined towards this idea advanced by J.A. Ball that a system might exist which somehow controls what we on Earth can or cannot achieve so far as contact with other intelligent species in the Universe is concerned. *Beings exerting such a system of control would be nothing less than what we conventionally term "GODS".* — G.C.

* *The Cambridge Atlas of Astronomy*, Edited by Jean Audouze and G. Israel, both of the C.N.R.S., France, with contributions from 51 other British and French astronomers and scientists. Published in French and English editions in 1985. Title of French edition: *Le Grand Atlas de l'Astronomie*. English edition published by Cambridge University Press.

MANNED FLIGHT TO ALPHA CENTAURI PROPOSED — AT 92 PER CENT THE SPEED OF LIGHT!

Paul Whitehead, FSR Consultant

THE frontiers of science are advancing so rapidly that a manned trip to our nearest stellar neighbours, a double star system called *Alpha Centauri A* and *Alpha Centauri B*, is planned for sometime in the next 60 years.

The round trip (including a year in the star system) would take just six years for the astronauts; for earth-bound observers, the total trip will be 13 years. The crew of two would age at only one-third the rest of the Universe, and they might be lucky enough to find intelligent life on planets around both star systems.

Is that just science-fiction? No. Scientists are re-evaluating their theories about what can and cannot be achieved by man in the foreseeable future, and one of them involves travelling inter-stellar distances. Buoyed up by the exciting news from Canadian astronomers that at least half the stars nearest to Earth might have planetary systems capable of supporting life, scientists are also changing their views on the possibility of finding life in the *Alpha Centauri* system.

Both *Alpha Centauri A* and *B* are almost identical with our Sun in their makeup — right down to the unlikely ratio of one atom of iron to every 31,620 atoms of hydrogen. This means they are as old as the Sun and hence old enough to have developed planets capable of supporting life.

Although the stars comprise a double star system, they are far enough apart to have their own solar systems with stable orbits. Two scientists, Charles R. Pellegrino and James R. Powell, say that habitable planets may exist around both stars.

The two men are co-authors of a new book, "*Flying to Valhalla*", to be published by TAB books, Pennsylvania, in 1988. They have also edited a scientific work, "*Interstellar Travel & Communication*" (which includes papers from a number of scientists), to be published by the American Association of Science next year. And it is they who are behind the proposed flight to *Alpha Centauri*.

A comprehensive study of their plan was recently published in the British press. In it, they revealed that the flight would search for planets for man to colonise. "Of course, there might already be life there, which will raise all sorts of interesting possibilities," one newspaper commented.

(Indeed, and it is interesting to speculate at this point that man is probably the youngest technological civilisation in the Universe. In "high tech" terms we are a mere few decades old. There may be tens of thousands or millions or billions more advanced than us *in our Galaxy alone*, some of them very close to Earth. And some of them, as our astronomers and scientists are beginning to note, may be keeping the

Earth under observation — if not becoming directly involved in our affairs in many ways).

Anti-Matter

Pellegrino and Powell propose to power the flight to *Alpha Centauri* with protons and anti-protons, which when they collide produce an effect 100 times more powerful than the standard hydrogen bomb.

The collision is a union between matter (protons) and anti-matter (anti-protons); the result is the production of other particles, pions and muons, which, the scientists say, can be ejected along a diverging magnetic field nozzle to produce thrust.

The technology to achieve the flight is available now or will be attained in the near future. Some of it is a spin-off of the American *Star Wars* programme, in which scientists have realised the potential explosive effect of combining protons with anti-protons.

A trip to *Alpha Centauri* will need 70 tonnes of anti-matter. Present-day particle accelerators can make only small quantities of it — but Pellegrino and Powell say much larger quantities could be produced by solar energy tapped on the planet Mercury.

Collision aversion

Just as science fiction stories include means to “zap” minute particles which could seriously damage a spacecraft when hitting it at high speed, so this new craft would have a “shield” to prevent collision. The shield would be a hot spray of liquid spurted out from the front of the craft, which would ionise any particles in its path. The spray would be collected and continually re-cycled.

To prevent the two-man crew from suffering either from radiation caused by the matter/anti-matter propulsion, or from the effects of the spray (e.g. limiting vision), they would be towed in a capsule several miles behind the main craft.

Endpiece

Of course, in 50 years time this plan will probably be scrapped. We will have found a way of transporting the crew to *Alpha Centauri* instantly — by instantaneous transmission, or travelling through a worm-hole in space, or by dusting down one of those alleged crashed saucers and finding out how they really work!

WORLD WITHOUT END — AMEN

Paul Whitehead, FSR Consultant

YET another debate is opening up in science with the publication of a new book by Dr Paul Davies (*The Cosmic Blueprint*, published by Heinemann, London, November 2nd 1987). Dr Davies, Professor of Theoretical Physics at the University of Newcastle upon Tyne, proposes that the universe is not winding down and dying, as formerly thought by most scientists for the past century. Instead, unknown forces are driving it into higher organisational states — systems of ever more complex energy which suddenly appear as if from nowhere.

The bleak view that the universe “is engaged in a one way slide towards a state of degeneration popularly called the Heat Death,” is replaced by one which hints that there may be a blueprint, a pre-existing plan or destiny which is slowly manifested as the universe unfolds. (Davies neatly buries his own written work on the Heat Death; he has been one of its proponents and has stated many times that the universe will simply turn extremely cold and eventually vanish into a black hole.)

Now we are offered a new vision, one which appears to strengthen his belief in a God/superbeing/superintelligence which existed before the Big Bang and the creation of the universe. At the same time, Davies promotes the “creative power of nature,” and with it the suggestion that consciousness may be evolving (or leapfrogging) on to higher planes.

The argument runs like this. Scientists are becoming aware that matter and energy possess an “astounding ability to self-organise.”

“While some physical systems invariably degenerate when left to themselves, others seem capable of leaping spontaneously into new states of higher organisational complexity.”

According to Davies, the popular notion that the elaborate organisation and complexity of the universe was “somehow imprinted on it at birth” (presumably by the laws which Newton and Einstein have proposed), is false.

In an article in *The Guardian* (October 23, 1987) about his book, Davies states:— “In fact, the latest thinking on the Big Bang suggests that, in the beginning, the universe was essentially featureless. *It may even have consisted of little more than empty space.*”

“All the intricate structures and complex systems that now pervade the cosmos have arisen, step by step, *from next to nothing.* These features have been generated since the *Creation in a methodical progression.*”

Davies says this is rarely discussed by scientists, because it does not fit into the picture they have created of a dying universe. (Much as most scientists do not discuss UFOs, because they don't fit into the picture! — Ed.)

The cosmic progression is an “undeniable fact”, and one which appears to run counter to scientists' views on evolution. Some of them have suggested that evolution is merely “random mutation caused by molecular shuffling”. Davies will have none of this. “How can biological order arise out of molecular chaos?” he asks. “What is the origin of the arrow of time manifested by the systematic advance of complexity?”

Naturally, he does not give away all the answers in a newspaper article, when he wants the public to buy the book! The article is a “taster” for the book, and we hope to publish a detailed review of the book during 1988.

He does state, however, that the ability to self-organise and to seek to “self-complexify” is not confined to living organisms. It appears in many physical systems, allowing matter/energy to leap spontaneously to a new, more complex and more organised state.

There has been a “plethora of discoveries in physics, chemistry, biology, mathematics and computing” to support this theory of self-organising. What appears to happen in these fields is this:— When something is forced far from equilibrium, it flips into a new existence (i.e., a new pattern of behaviour).

To express this in more common language, one

could say that when something is stretched to its limits, it may undergo a dramatic change and re-organise itself to form something totally new. The "new" can then be pushed to its limits, when it will spontaneously flip into yet another new pattern of behaviour.

Take chemistry, for example. The Nobel prize-winner Ilya Prigogine has experimented with chemical reaction cycles which, when pushed far from equilibrium, spontaneously flip into pulsations.

"Countless trillions of molecules conspire to produce a highly synchronised chemical heartbeat. In other reactions, the molecules organise themselves to grow elaborate geometrical shapes."

Strange things are also happening inside computers and computer networks. In experiments, scientists feed random pulses of electricity into networks of computers. The results should have been unexciting and predictable, with the occasional "blip" on the recording devices indicating the passage through the network of each pulse.

But what actually happens is truly amazing. Self-organisation of the Pulses emerges. "Coherent patterns of electrical activity spontaneously appear and propagate around the network in a stable manner." One result could be advances in Artificial Intelligence; it appears that man could devise computers capable of thinking. (Unfortunately, they would probably think for themselves, and that would present some problems. We would have invented our very own aliens!)

Davies says that man is beginning to uncover a

whole new layer of general laws or principles applicable to complex systems. These laws operate within the known laws of physics, but in ways which are not yet understood.

He introduces a favourite theme of his — the *holistic* way of looking at the universe and everything it contains. Scientists are wrong if they think they can know the whole of something by studying its parts. Many physical systems cannot be understood in that way, he argues.

The new ideas recognise "that qualitatively new phenomena emerge at higher organisational levels, phenomena that require their own laws and concepts to describe them adequately."

There is a real creative potency in nature. "It drives the universe forwards into ever higher organisational states — be it the formation of galaxies, the generation of life from inorganic molecules, the development of the embryo, or the operation of the human brain."

Dr Paul Davies and the other scientists working in this field have opened the door to new horizons, new understanding, and new possibilities. Here, there may be an explanation for the higher states of consciousness and other life forms spoken of in the literature of cosmology, mythology and religion.

There may also be an indication about ourselves, too — that if we don't push ourselves mentally/spiritually (is there truly a difference?), we will stagnate, and never make the breakthroughs many of us hope for. "*Mankind in Amnesia*" would be our final epitaph.

ANOTHER SWEDISH LANDING REPORT

ACCORDING to a report under banner headlines, "UFO ALANDS . . . OFFICIAL" in the London newspaper *Sunday Sport* (July 12, 1987), Swedish authorities were investigating the case of a tough truck-driver who had been found in such a state of gibbering terror that the Police thought at first that he was an escapee from a mental institution, and carted him off to hospital in a strait-jacket.

But the driver, Dan Johnson, was judged to be totally sane, and the report goes on to say that the Swedes are now having to face the fact that his story is true, particularly since a second truck-driver has come forward to corroborate it.

Johnson, aged 41, of Tingsryd, Sweden, claims that he saw the huge UFO, about 250 ft. wide and 30 ft. high, hovering just above the road as he drove home-wards in his car at 1.00 a.m. He reached his home and got his camera, and then telephoned from a call-box to alert the Police.

Suddenly the UFO made a second appearance over the road, and this time it landed. His engine stalled and he almost crashed into the craft. He was frozen with terror.

"Suddenly, aliens came out from the machine and approached the car. They were man-sized, with bodies like the bark of trees and heads like onions. One opened the car door, and I screamed as I've never screamed before. They pulled me out, kicking and struggling."

Dan says he was saved by the approach of a lorry carrying a load of timber. Its headlights picked out the UFO, and the aliens took off.

Dan Johnson collapsed, to be discovered later by police who were out looking for him, having received a 'phone call from the driver of the timber-lorry.

The Swedish military authorities gave Dan Johnson lie-detector tests, and he passed them. The psycho-analysts stated that in their view he was telling the truth. And a spokesman for the hospital said: "We set traps, to see whether he was lying, but he was not. It seems that his story is true. A UFO did land".

The British press report (exclusive from Charles Renfrew) concludes with the statement that Dan Johnson had volunteered to come to Britain to take any lie detector or truth-drug tests here.

CHARLES BOWEN

We regret that the expected obituary article on Charles Bowen has not arrived in time for inclusion in this issue, and will therefore have to be published later.