

Evolution, Biological Universe and the Concept of a Personal God

(simplified, truncated version of the paper for oral presentation, with incomplete references)

*Can a lizard comprehend a man?
Can a man comprehend a god?
Who dares speak for God?
Perhaps... even the gods have gods....*
Rhawn Joseph

This presentation will be about the possibilities of intelligent life elsewhere in the universe, drawing from there some possible implications for theism. The presentation will be divided into two parts accordingly. It can be considered a contribution to the dialogue between science and religion.

1. Biological universe

The last half century has seen unprecedented developments in sciences, especially in molecular biology and biochemistry. Genetics has deciphered the workings of life. We know that all living beings are composed of cells, which in turn are composed of common chemical elements and owe their existence to universal metabolic processes and particular genetic codes. The basic scheme is the same, and life is one. On Earth it has a singular origin: a single-celled organism with DNA a.k.a. “the last universal common ancestor”, whose genetic code can be traced in the genetic structure of all life forms on Earth. Today the scientific evidence for evolution is so solid that scientists consider it an established fact.

There is one puzzle, however, namely, it is not yet clear, how the universal common ancestor emerged from the chemical elements that are scattered in the universe and were available on the early Earth. The process of creating a living, self-replicating cell from scratch has not yet been repeated in a lab, but scientists are not far from it. Today DNA and RNA molecules are already copied and artificially synthesized. Creation of a fully artificial cell will confirm the possibility of abiogenesis, spontaneous emergence of life from abiotic chemical components.

There is also an alternative entertained that the universal common ancestor did not originate in the primordial “organic soup” on Earth but somewhere else and was then carried here by comets or meteorites.

This is a revamped ancient theory of panspermia. In the second half of the 20th century this theory was represented by such scientists as Fred Hoyle as well as by the Nobel Prize winner, discoverer of the structure of DNA, Francis Crick and his colleague Leslie Orgel. Interestingly, the latter two argued for “directed panspermia” – that life in the form of microbes was deliberately transported here in a spaceship by a higher civilisation (Francis Crick, *Life Itself: Its Origin and Meaning*). Admittedly,

the theory of panspermia does not explain the emergence of life before it came to Earth. The problem of emergence remains.

To date, there is no scientific evidence of other life forms except this one on Earth. This makes many scientists to conclude that we are alone in the universe (e.g., Jacques Monod, Simon Conway Morris et al.). This conclusion may be reinforced by the apparent “fine tuning” of the evolution of the universe and the solar system for life, also facilitating creation of theories such as the “anthropic principle” and “intelligent design”.

The current astrobiology has great hopes for finding some alternative microbial life in the solar system: particularly in possible deposits of liquid water on Mars or under the ice cover on the moons of Jupiter and Saturn. The thing here is: as soon as another form of life is detected, this will give a statistical basis for a conclusion that the universe is teeming with life. Many scientists already think that this may be the case even with only one form of life at hand so far, given its evolutionary purposiveness in ever-increasing complexity. This view is also related to the so-called “biological determinism”, according to which life necessarily arises in suitable conditions from the common organic elements found in the universe, and even necessarily evolves to intelligence. Biological determinism is represented, e.g., by Nobel Prize winner Christian de Duve, who calls life a “cosmic imperative” (Christian de Duve, *Vital Dust: Life as a Cosmic Imperative*).

Next, supposing we live in a “biological universe” (the phrase coined by Steven Dick, the former official historian for NASA), this immediately calls for the question posed in the mid-20th century by one of the “fathers” of the atomic bomb Enrico Fermi, who was convinced of the existence of extraterrestrial life. The question is also known as the “Fermi Paradox”, *silentio universi*, or “The Great Silence”.

Fermi’s train of thought was follows: in our galaxy alone there are at least 100 billion stars which are billions of years older than the Sun. Many of them should have planets similar to Earth, which must host intelligent life if the Earth is typical. Furthermore, there should also be civilizations that have developed to the level of being able to travel in space, because that’s where we are heading (note: it’s in the year 1950!). If so, then the calculations show that the whole galaxy should have been colonized within some tens of millions of years. Or at least some of these advanced extraterrestrials would have shown up or otherwise manifested themselves. Fermi’s legendary question at the dinner table with friends was: “Where are they?” Today the situation hasn’t changed much: the radiolocators of the SETI projects have not detected anything already for over half a century.

There is a whole range of possible responses to Fermi’s question (the most comprehensive account – 50 answers – is found in Stephen Webb, *If the Universe is Teeming with Aliens... Where is Everybody? Fifty Solutions to the Fermi Paradox and the Problem of Extraterrestrial Life*).

Even in the case of a biological universe, there are a number of “filters” or “barriers” for the development of a civilization. One of these filters is a possibility that a form of life will not reach intelligence, not to mention the next filter – that it will not reach the level of technology required for colonization of the galaxy. We also have not passed this filter yet.

Perhaps there is no extraterrestrial life at all. This situation, by the way, would be most promising for us, as then there would be a chance for us not to perish but develop further (otherwise, if there had been instances of intelligent extraterrestrial life and they have not shown up, it means they have perished, and then it's our prospect as well; see Nick Bostrom, “In the Great Silence there is Great Hope”).

Maybe life is extremely rare – just in some galaxies of billions. Maybe they just decided to sit at home, or are unable to travel so far. Maybe technologically advanced civilizations perish in ecological, nuclear or some other disasters before managing to colonize the galaxy. This is a filter we have to face, and if we make through the next centuries, maybe we will have a chance to develop and evolve further and colonize the galaxy by ourselves.

Maybe they are hiding, or have established a secret society of advanced civilizations, committed not to contact us before we reach an adequate level of moral development. There is also the so-called “Zoo Hypothesis”, that is: humans and Earth are being kept as a “zoo” or wildlife preserve by advanced alien zookeepers who have decided to monitor our activities, while remaining undetectable themselves.

Last but not the least, many say they are here already. Many people claim having seen aliens, made contacts with them, or even have been temporarily kidnapped for experimental purposes, or abducted (numerous accounts of “close encounters” in different programmes on the Discovery Science channels). Thrilling as these stories are, in most cases, to concede, the alleged behaviour of the aliens really leaves much to be desired relative to the level of intelligence they must possess in case they manage to make these travels. What is the point of making crop circles, chasing cows, cars and aircraft, and scaring hell out of people – actions not to be expected from cosmic superminds (as notes Paul Davies, *The Eerie Silence: Are We Alone in the Universe?*). That is one thing. Another and most important is the lack of evidence. All we have is eyewitnesses' accounts, and those do not qualify as evidence.

Many people believe in UFOs, although maybe not as many as believe in God. There may be at least some similarity. In either case, there is no evidence, only belief. Is the absence of evidence an evidence for absence? (Martin J. Rees, “Life in Our Universe and Others: A Cosmological Perspective”) Given the limitations of our knowledge, we are free to believe either in extraterrestrials, or in God, or in both, or in neither. In the case of the two kinds of belief, there are many unifying factors: both God and extraterrestrials may represent the human quest for superior intelligence, perfect knowledge or omniscience, wisdom, perhaps for power or omnipotence (cf. Steven

Dick, "Cosmotheology: Theological Implications of the New Universe"), as well as for immortality and other stuff that evolutionary psychology brings up in explaining the human propensity for religion as useful in the process of adaptation. There are also differences: extraterrestrials are not conceived as supernatural beings, therefore the degrees of trust may differ.

With this I am already getting into the theological part of the presentation. Prior to that, I should remind that in philosophy of religion we are dealing mainly with logical possibilities, and this can also be done in a neutral manner, without the author (me in this case) being an adherent of the ideas s/he is considering.

2. Astrotheological implications of the biological universe for personal theism

What I propose is some sort of "astrotheology". The term was invented in 1715 by the British cleric and natural philosopher William Derham, for whom astrotheology meant conclusions to be made regarding the existence and attributes of God in the light of the then current astronomy. Likewise today astrotheology could mean the use of today's knowledge of the universe in transforming theology.

Notwithstanding the "double life" concept proposed by Professor Simo Knuuttila in the opening session of the conference, for those people who have knowledge in astrophysics, molecular biology and other fields and who at the same time want to maintain theistic worldviews, it becomes increasingly difficult to accept the logically contradictory monotheistic model of an utterly transcendent and at the same time personal God (Professor Daphne Hampson made a similar acknowledgment in her presentation). The personal attributes appear to be sheer anthropomorphisms, which are then hushed up by the notions of God's transcendence and unknowability. It seems that for theists educated in contemporary scientific knowledge it is much easier to understand and accept the idea of a "natural" God, especially in view of the incredible vastness of the universe revealed by the Hubble telescope, and also, I'd say, its devastatingly impersonal nature. Frankly speaking, even the local earthy gods of our monotheisms may appear too small compared to the universe we know.

Moreover, the mechanisms of emergence of the universe and life in the perspective of today's knowledge are by themselves so stunning that, to use Lee Smolin's phrase, even God's absence in these processes is God enough ("Our Relationship to the Universe"). There are Christian theologians who have realised that, constructing relevant theologies (e.g., Gordon Kaufman). Perhaps it is time to return to pantheism, understanding God as undistinguishable from nature, which seems widespread among theistically-minded scientists participating in the dialogue between religion and science. Either God is present everywhere in nature, or else God is nowhere. A conception of a natural God could fare better in this dialogue compared to the concept of a supernatural person.

Now my proposal, which, to concede, is just an exercise in imagination (or fantasy? – an instance of "wrong" theology, an issue brought up by the audience during

Professor Marius Timmann Mjaaland's presentation), bordering with science fiction (this is my disclaimer). Notwithstanding the weak prospects for personal theism, astrotheology may also have good news for it, bringing possible transformation.

Some preliminary considerations. Already at the present state of our development, some individuals manifest amazing capacities of mind, sometimes also extrasensory faculties. But we are most likely somewhere in the very beginning of the development of intelligent life, compared to the 14 billion years of age of the universe and given that the human species evolved only 2 million years, *Homo sapiens* – 500 000 years, civilization and history – mere few thousand years.

Now imagine: what kind of entity a human being would be after evolving over millions or even billions of years from now (when we, by the way, are making first steps in our own genetic engineering)? Consider our own advances in science and technology in the last 100 years, but imagine what would our technology be if we had an opportunity to develop millions or even billions of years from now? In fact, we can't imagine.

We can surmise: What if there are such ancient beings in the biological universe, who have developed faculties of cognition and perception that go far beyond our five senses and minds limited by few categories, beings who know all the workings of the universe, who have technologies that would appear miraculous to us? (Arthur Clarke writes: "Any sufficiently advanced technology is indistinguishable from magic." Michael Shermer states what he calls the "Last Law": "Any sufficiently advanced extraterrestrial intelligence (ETI) is indistinguishable from God.") Compared to such beings, our state of development might perhaps seem only a tiny step ahead of frogs. Wouldn't we perceive them as gods – even if they evolved naturally?

A being of such kind would indeed appear to be a god to us. More than that – a personal god, person in a literal, not metaphorical sense. Such a being could have some of the properties attributed to God in monotheistic traditions. For instance, it could be our "creator", in a directed manner having planted the "seed of life" or "the universal common ancestor" here on early Earth. Thus, a human being could be conceived as an *imago dei*, an offspring from the genetic material of that higher being. After that, when life has evolved to self-consciousness, that being could keep track of our moral progress, itself remaining invisible, maybe from another universe within the multiverse, wherefrom it could remotely maintain a personal relationship with humans, which is so important for faith. Such a being may also have characteristic traits, character and emotions, which gives a new perspective on the problem of anthropomorphism in theology. This being could even sometimes miraculously intervene from above in the course of worldly events, give new revelations, answer prayers, bestow enlightenment, and so on... Who can tell if the gods of our religions – if they are – are or are not such beings?