The Spontaneous Generation Hypothesis

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Abstract

As our knowledge of life's microscopic secrets continues to advance it is instructive to reflect upon the history of the spontaneous generation hypothesis to contemplate whether scientific advancements are indeed progressing as an anti-creationist predicted nearly two decades ago:

> If I have made my point, the next time you hear creationists talking about the "impossibility" of making a particular protein, …you can smile wryly and know that they are nowhere near a consideration of the real issues. … Given the rapid rate of progress in our understanding of molecular biology, I have no doubt that satisfactory explanations of the problem posed here soon will be forthcoming. (Doolittle, 1983, p. 96).

Concepts of Spontaneous Generation

Aristotle (384–322 B.C.), Greek philosopher and scientist, expressed the hypothesis that decaying material could be transformed by the 'spontaneous action of Nature' into living animals. Classical scientists as recently as 200 years ago believed in vitalism, the idea that non-living material like dirt, damp hay, or decaying meat had innate vitality such that "simple" life would spontaneously arise from it. Francisco Redi is best remembered for his 18th century experiments demonstrating that maggots did not come from the meat but from the flies that had laid their eggs upon it. In the 1860's Louis Pasteur conducted his famous scientific disproof of spontaneous generation in which he sterilized and sealed jars of nutrients, demonstrating that only life begets life—the law of biogenesis. In reflecting upon this, Wald (a proponent of spontaneous generation) notes:

> We tell this story to beginning students of biology as though it represents a triumph of reason over mysticism. In fact it is very nearly the opposite. The reasonable view was to believe in spontaneous generation; the only alternative, to believe in a single, primary act of supernatural creation. There is no third position. For this reason many scientists a century ago chose to regard the belief in spontaneous generation as a 'philosophical necessity.' It is a symptom of the philosophical poverty of our time that this necessity is no longer appreciated. Most modern biologists, having reviewed with satisfaction the downfall of the spontaneous generation hypothesis, yet unwilling to accept the alternative belief in special creation, are left with nothing. (Wald, 1954, p. 46).

Darwinists, in pursuit of this "philosophical necessity," naturalism, have invested great effort and significant finances into attempts to bridge the gap between nonlife and life, either in the field or in the laboratory. The hope throughout the end of the nineteenth and into the beginning of the twentieth century had been that "intermediates" would be found between raw chemistry and the cell. Evolutionary luminaries like Haeckel and Huxley offered unqualified support for *Bathybius*, the slime dredged from the ocean floor that was briefly thought to be living. *Eozoon*, a metamorphic rock product, also was once supposed to be organic. "*Eozoon* entered the fourth edition of the *Origin of Species* with Darwin's firm blessing: 'It is impossible to feel any doubt regarding its organic nature' (Gould, 1980, p. 239).

Then evolutionists shifted their efforts toward synthesizing life in the laboratory. J.B.S. Haldane's ideas in the 1920's inspired the phrase "the primordial soup," and origin of life experiments were designed to recreate primitive earth conditions. Even if scientists had been successful in this endeavor, it certainly would not have demonstrated that life could arise without intelligent intervention in a harsh natural environment. To date, they have failed completely. "Furthermore, no geological evidence indicates an organic soup, even a small organic pond, ever existed on this planet." (Thaxton, et al., 1992, p. 66). There was the short-lived euphoria over Miller's prebiotic soup experiments in the 1950's. Boiling and electrically sparking a mixture of methane, ammonia, hydrogen and water produced some basic amino acids. But follow-up work only illuminated new barriers between complex chemicals and

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the simplest conceivable life. Finding the building blocks does not solve the problem any more than finding stones could explain the naturalistic production of an ancient cathedral.

In the fall of 1976, despite grandiose predictions from astronomers like Carl Sagan, the *Viking* mission to Mars failed to detect any trace of life. The statistical difficulties finally began to be acknowledged. Wilson illustrates a tiny piece of the probability problem, focusing on the 10 enzymes that are involved in glycolysis:

> The random, undirected polymerization of these enzymes from a mixture of the twenty amino acids is calculated to occur with a rough probability of 10^{-1000}. Even with relatively fast rates of polymerization and a billion-year time scale, it is argued, the likelihood that even one copy of each of these enzymes would be spontaneously produced is infinitesimal. The overall likelihood is not much improved even if only one of the ten enzymes is considered, and, of course it becomes preposterously small for the thousand or so different enzymes in a typical bacterium. (Wilson, 1983, pp. 95–96)

Intelligent Design Theory

As a result of such calculations, some scientists embraced Intelligent Design theory, predicting that complex biological systems never would arise naturally. Even leading evolutionists, like Hoyle, determined that the chances of abiogenesis (first life arising from non-life) occurring on this earth are so phenomenally unlikely that they instead postulated life coming from space (panspermia):

> I don't know how long it is going to be before astronomers generally recognize that the combinatorial arrangement of not even one among the many thousands of biopolymers on which life depends could have been arrived at by natural processes here on the earth. Astronomers will have a little difficulty at understanding this because they will be assured by biologists that it is not so, the biologists having been assured in their turn by others that it is not so. The 'others' are a group of persons who believe, quite openly, in mathematical miracles. They advocate the belief that tucked away in nature, outside of normal physics, there is a law which performs miracles (provided the miracles are in the aid of biology). This curious situation sits oddly on a profession that for long has been dedicated to coming up with logical explanations of biblical miracles. …It is quite otherwise, however, with the modern mathematical miracle workers, who are always to be found living in the twilight fringes of thermodynamics. …The notion that not only the biopolymers but the operating programme of a living cell could be arrived at by chance in a primordial organic soup here on the Earth is evidently nonsense of a high order. Life must plainly be a cosmic phenomenon. (Hoyle, 1981, pp. 526–527)

Yockey shows that Hoyle is not unique:

> Faith in the infallible and comprehensive doctrines of dialectic materialism plays a crucial role in origin of life scenarios, and especially in exobiology and its ultimate consequence the doctrine of advanced extra-terrestrial civilization. That life must exist somewhere in the solar system on 'suitable planets elsewhere' is widely and tenaciously believed in spite of lack of evidence or even abundant evidence to the contrary. (Yockey, 1981, pp. 27–28)

More recent origin of life chemistry, from the "proteinoids" thought to have formed on the rim of a volcano, to the RNA-world preceding DNA, to novel ideas about inorganic mineral clays has been gamely pursued. The utter failure of these theories is highlighted by the evolutionists following Gould's lead, believing in a biochemical predestination that is vaguely reminiscent of vitalism. After reviewing evidence that life on earth started far earlier than previously thought Gould stated: "…I don't know what message to read in this timing but the proposition that life, arising as soon as it could, was chemically destined to be, and not the chancy result of accumulated improbabilities." (Gould, 1990, pp. 16–17). Since known processes plus chance failed to rationalize a naturalistic origin of life, naturalism proponents were forced (by the data and their philosophical predispositions) to retreat to untestable assertions that unknown deterministic processes were sufficient. Nobel laureate DeDuve concurs with Gould:

> Another lesson of the Age of Chemistry is that life is the product of deterministic forces. Life was bound to swiftly arise under the prevailing conditions, and it will arise similarly wherever and whenever the same conditions obtain… Life and mind emerge not as the result of the freakish accidents, but as natural manifestations of matter, written into the fabric of the universe. (DeDuve, 1996, pp. xv–xviii)

Most recently Paul Davies imagined that

> some sort of self-organizing physical processes could raise a physical system above a certain threshold of complexity at which point these new-style 'complexity laws' would start to manifest themselves, bestowing upon the system an unexpected effectiveness to self-organize and self-complexify. …Under the bidding of such laws, the system might be rapidly directed towards life. (Davies, 1999, p. 259)

ReMine points out that "It merely replaces the old unknown mystical forces with new unknown 'naturalistic' forces. Either way it is not science." (ReMine, 1993, p. 95)

The aforementioned Hoyle citation refers to the laws of thermodynamics. These have been applied to biological

complexity in the growing field of information theory. Much like the complex instruction sets that drive computer systems, living systems are built using vast libraries of information stored in the genetic code. Information theory predicts that just as useful computer routines will not randomly arise, so increases in DNA information to code for biological functions will not happen without intelligent intervention. Even evolutionists like Davies acknowledge the problem:

> Communication theory—or information theory, as it is known today—says that noise destroys information, and that the reverse process, the creation of information by noise, would seem to be a miracle. A message emerging on its own from radio static would be as surprising as the tide making footprints on the beach. We are back with the same old problem: the second law of thermodynamics insists that information can no more spring into being spontaneously than heat can flow from cold to hot. (Davies, pp. 56–57)

Behe argues that intelligent design theory need not invoke the supernatural to present a compelling argument for the creation of these biological systems. After discussing Sir Francis H.C. Crick's 1992 *Scientific American* interview exploring his belief in "Directed Panspermia," Behe explains:

> The primary reason Crick subscribes to this unorthodox view is that he judges the undirected origin of life to be a virtually insurmountable obstacle, but he wants a naturalistic explanation. For our present purposes, the interesting part of Crick's idea is the role of the aliens, whom he has speculated sent space bacteria to earth. But he could with as much evidence say that the aliens actually designed the irreducibly complex biochemical systems of the life they sent here, and also designed the irreducibly complex systems that developed later. The only difference is a switch to the postulate that aliens constructed life, whereas Crick originally speculated that they just sent it here. It is not a very big leap, though, to say that a civilization capable of sending rocket ships to other planets is also likely to be capable of designing life—especially if the civilization has never been observed. Designing life, it could be pointed out, does not necessarily require supernatural abilities; rather, it requires a lot of intelligence. If a graduate student in an earthbound lab today can plan and make an artificial protein that can bind oxygen, then there is no logical barrier to thinking that an advanced civilization on another world might design artificial cells from scratch. (Behe, 1998, pp. 248–249)

Conclusion

It now becomes clear that, even for the committed naturalist, there is a more rational alternative than the spontaneous generation scenarios. But some might object that this solution involving intelligent design of earth's life still leaves the problem of initial life unsolved. Behe responds that time travel (allowing future engineers to seed life) has been seriously proposed by some physicists; or naturalists can postulate that alien life is so radically different than anything we have known that it would not exhibit the design features of empirical biology. For those whose philosophical predisposition does not preclude the consideration of supernatural intervention, the most reasonable conclusion to be drawn from the longstanding inquiry into the spontaneous generation hypothesis is that the phenomenon of life implies a Creator. Dembski notes that there are only "two options: Either the world derives its order form a source outside itself (a la creation) or it possesses whatever order it has intrinsically, that is, without the order being imparted from outside." In presenting his "Law of the Conservation of Information" he concludes: "the only coherent account of information is design." (Dembski, 1999, pp. 15, 99). After reviewing the creative action of God, the scriptures make clear that "In him was life; and the life was the light of men." (John 1:4). Regardless then of one's metaphysical worldview, the time has come for the hypothesis involving the spontaneous generation of life as we know it to die a natural death.

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Book Review

***The Age of the Universe: What are the Biblical Limits?* by Gorman Gray**
Morningstar Publications, Washougal, WA. 2000, 192 pages, $9.99

Evolutionists claim that the geological record represents millions of years of earth history. Creationists insist that God created everything in six solar days less than 10,000 years ago. And so the two groups have been at loggerheads for years, with little prospect of solving the controversy.

One recent book which attempts to clarify some of the problems involved is this biblical study by Gorman Gray. His thesis is that both groups have erred, evolutionists by trying to deny the plain evidence of earth's surface shaped by catastrophe, and creationists by misreading the very first sentence of Genesis. Many believers skim the first verses of the creation account rather quickly. But according to Gray, we should pause to examine "In the beginning God created the heavens and the Earth." In his opinion this is not a summary as is so often assumed. It is a description of an event.

> It is not stated when the heavens and earth were created, and up to this point there has been no identification of their creation with day one. There has been an assumption (that heaven and earth were created as part of day one) but that idea is ill founded… (p.58).
>
> The universe radiated its enormous energy as soon as God created the heavens in verse 1, but the surface of the earth… lay in total darkness under a thick cloud according to verses 2 and 6 as well as Job 38 where the Lord Himself describes the conditions (p. 59).
>
> The planet continued "barren, waste, and dark," and may have been that way for multiple ages before a first day took place (p.60).
>
> Day one begins the work of conditioning a deserted and empty planet for life… So, about 6,000 or perhaps 7,500 years ago, God commanded light to shine on the earth… Light was not created on the first day. Light coexists with matter and had been beaming throughout the universe since the beginning creative fiat (pp. 61-62).
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> Beginnning with the first day, the biblical text focuses on the local biosphere. A rotating planet existed and a light source of fixed orientation created day and night. The light became diffusely visible at first; later on day 4, the remaining clouds were parted and God "brought forth" the sun, moon, and stars, making them fully visible to provide signs and seasons for man (p.59).

The author points out that the Hebrew word asah, usually translated "made" expresses many shades of meaning, so that in verse 16 "brought forth" expresses God's action when he made the heavenly bodies fully visible on earth. The noun "heavens" may refer to the atmosphere, or to the visible universe depending on context.

Mr. Gray makes his arguments in a most irenic way, giving great detail in attempting to make these ideas clear. He rightly assigns responsibility for human error in biblical interpretation to our ancient enemy, Satan, who loves to see us in controversy over God's word.

This is a scholarly book, with a number of chapters devoted to methods of Bible interpretation and to answering various viewpoints in origins theory. There are several appendices, a bibliography, and subject and scripture indexes. The ideas herein expressed merit careful consideration by those engaged in the study of origins.

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