GENERAL SCIENCE NOTES

LIFE, AN EVIDENCE FOR CREATION

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Our biosphere abounds with life. Representatives of more than two million species can be found in the atmosphere, in the deepest part of the oceans and on the surface of the earth where no fewer than ten thousand organisms exist per cubic inch. The abundance of life in our environment leads scientists to propose that whenever and wherever conditions for life are favorable, it will spring into existence.

This prediction was tested only once, when automated laboratories were sent to Mars in the 1970s to check for the presence of life. The results were negative, even though Martian conditions could support certain life forms.[1] Since no other planet in the solar system is capable of supporting life as we know it, life here on earth is more unique than many individuals had previously supposed.

How unique is life? If it can be shown that the capacity to form life is inherent in matter, as naturalistic evolutionists assert, we have the option of believing that life began here either by the spontaneous generation of primitive life forms under primordial conditions or by the creative act of a supernatural agent. (A third possibility, panspermia, is in reality a variation on either of the previous two choices and will not be considered here.)

Our knowledge of life from the evidence at hand argues against the notion of nonliving matter organizing itself spontaneously into life forms under any conditions at any time.

"Life," as I use the term, refers to the "state of living"[2] and cannot be dissociated from matter. For purposes of discussing origins, "life" in the abstract sense, devoid of matter, does not exist. "Living state" is a designation which sums up the functions of unique composites of matter. Life is a property of the entire complex. If the living complex is taken apart, the system ceases to live. It follows that components of the system are not living; that living matter is made up from nonliving components. The most fundamental living systems are called cells. "Life" or "living" is also used to describe the functions of specialized cell complexes called organs. On an even higher level of organization are organ complexes called organisms.

Even though components of living cells are not alive, they are unique and different from nonliving matter found at large. The four most abundant (by weight) elements in living matter are hydrogen (~ 60%), oxygen (~ 25%), carbon (~ 10%) and nitrogen (~ 1%); whereas in nonliving matter they are oxygen (~ 50%), silicone (~ 30%), aluminum (~ 8%) and iron (~ 5%).

In nonliving matter elements combine to form sturdy, low molecular weight compounds of high oxygen content. The extreme reactivity and great natural abundance of oxygen creates a situation in our world where these combinations of elements represent, energetically speaking, "the bottom of the hill."

In contrast, biomolecules to a large extent are highly reduced, carbon-based, fragile polymers. Considerable expenditure of energy is required for their production, and energetically they are on "top of the hill," i.e., relatively unstable.

Matter in cells is organized into successively more complex structures in the following order: precursor metabolites → building block substances → polymers → organelles → cell. According to our best estimates, a single bacterium such as *Escherichia coli* needs 12 types of precursor metabolites, about 100 types of building block substances and 1500-2000 different kinds of polymers; the total number of molecules being around 25 million per bacterium.[3]

The order in which building blocks are arranged in the biopolymers DNA, RNA and proteins is highly meaningful. It constitutes the basis of biological information necessary for living matter to function. This information, however, is not inherent in the building blocks. The rules of chemistry define how building blocks such as the four types of deoxyribonucleotides may be linked to form DNA, much the same way as the rules of grammar define the order in which letters of the alphabet may be arranged to spell words or how words may be put in proper order to make meaningful sentences. The rules of grammar, however, are not adequate for choosing the letters to be arranged as words or words which are to appear in sentences. This sort of information has to be superimposed upon the laws of grammar by the writer of words and sentences. Similarly, biological information residing in the biopolymers DNA, RNA and protein needs to be supplied by an intelligence, using the rules of chemistry.

Evolutionists insist that the biological information found in biopolymers is not a product of design, but is the result of random variation coupled with selection in favor of molecules which can contribute to the living state of matter.

If primordial mechanisms existed which generated biopolymers more or less at random [such mechanisms have been proposed, but their feasibility is open to grave doubt[4]], would randomly produced biopolymers which contain biologically useful information be favored over similar molecules with no information content? The answer is no, because the utility (and hence the meaning) of biological information carried by a given polymer depends on the presence of other biopolymers possessing complementary information, and the true biological sense of each component is realized only when the system is together and functioning in the living state.

Those who argue for the feasibility of a spontaneous generation of life place great stress on the well-known ability of certain biopolymers to self-organize. This phenomenon is seen as a possible means by which living matter came into existence. However, in order to form meaningful aggregates such as a ribosome or a viral coat, one has to begin with subunits which are preprogrammed for aggregation. Randomly generated, single DNA strands or protein molecules with no information content may or may not aggregate, and aggregation of itself will not necessarily carry biological meaning.

Isolated components of living matter can perform tasks such as replication of DNA or its transcription to RNA molecules, and even production of functional protein molecules, provided that at hand are the necessary ingredients and an energy-generating system. But these "in vitro" reactions by no means approximate the living state.

Although a precise definition of the living state for cells does not exist, at the minimum we need a system which absorbs simple building-block type molecules such as amino acids, monosaccharides, purines, pyrimidines and fatty acids; builds them into polymers and supramolecular complexes in a controlled, harmonious manner; and is able to utilize the chemical energy found in highly reduced molecules for growth, active transport of nutrients, etc. A most important consideration is that the sum of the constituents of living matter should not be at chemical equilibrium. Once chemical reactions reach equilibrium they cannot be directed for the release of energy.

The bulk of living matter is made up of hundreds of types of enzymes whose specific task is to bring chemical reactions rapidly to equilibrium. However, because the product of one reaction turns out to be the starting material of the next chemical conversion, equilibrium is not reached. We find chemical transformations in which the end product of a given reaction sequence is able to terminate the initial reaction of the sequence through specific feedback inhibition. The existence of control mechanisms such as feedback inhibition enables cells to maintain relatively constant concentrations of biomolecules in a nonequilibrium steady state. It cannot be envisioned that this situation could be established if one began with a cell in which all components were at equilibrium.

These considerations highlight two theoretical problems which evolutionary postulates concerning the origins of life cannot solve:

1. What is the source of biological information which dictates the structure and function of biopolymers?
2. In the initial development of cells, how could all molecules necessary for life be sequestered into a cell in such a way that they are in a state of non-equilibrium, when the bulk of these molecules are very efficient biocatalysts specializing in the establishment of equilibrium?

It is widely acknowledged that life is a nonspontaneous process. If this indeed is the case, life must have arisen by a nonspontaneous process, because nonspontaneous events, by definition, cannot begin spontaneously. Since creation qualifies as a nonspontaneous process, the very existence of the phenomenon of life is an evidence for creation.

ENDNOTES

1. 1976. Twenty reports on the Viking I and Viking II missions. Science 194:1274-1353.
2. Lehninger AL. 1970. Biochemistry. 2nd ed. NY: Worth Publishers, p 415.
3. Ingraham JL, Maaloe O, Neidhardt FC. 1983. Growth of the bacterial cell. Sunderland, MA: Sinauer Association, Inc., p 3.
4. Evard R, Schrodetzki D. 1976. Chemical evolution. Origins 3:9-37.