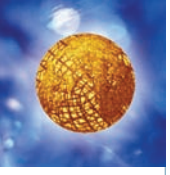

FAITH, SCIENCE, AND LIFE: TOWARD A COHERENT COSMOLOGY

KEVIN R. LIND

THE ORIGIN OF THE UNIVERSE SEEMS an event so detached from daily life as to be irrelevant, but it is of critical importance. How we perceive this origin determines, to a great extent, the purpose and meaning of our lives. Unfortunately, disagreements stemming from that perception have contributed to conflict. Religion has one answer, science another, and neither seems interested in looking at the universe as a living system. Intelligent design is a concept that may serve, in some ways, to reconcile these viewpoints into a consistent worldview.

THE PURPOSELESS UNIVERSE

Intelligent design is the hypothesis that the universe was created by some purposeful being or principle of order as yet undiscovered. In contrast, the neo-Darwinian hypothesis (generally presented as THE theory in science classes) assumes that there is no designer, hence no design. Everything happened randomly, and any order is due to the "survival of the fittest." Ironically, the question of design versus random order is the only area where these two views must conflict; survival of the fittest—which states that the organism most able to compete for its needs is the organism that will reproduce and fill its niche in the ecosystem—is consistent with either view. Survival of the fittest can be taken as a proven theory or law and is sufficiently self-evident that one would be tempted to accept it as fact (though science frowns on making such assumptions). Experiments have demonstrated that survival of the fittest will inevitably result in the dominance of the organism best suited to its environment, thus the more accepted technical term "natural selection." Selection does not imply intelligent design, though; the course of nature itself leads to this result.

The concept of a living universe is more difficult to fit into this question of origins, simply because there is no real definition of "life" in biology that would include something so far removed from organic life as the universe itself. So, rather than ask, "Is the universe living?" consider the question, "How does the universe relate to life?"

If the universe was created in a random event, without purpose, then it is simply a space in which other random things have occurred and continue to occur, with no real relationship among them. Life, in this view, is simply the development of an organic structure that organizes and replicates itself. The difference between life and a crystal is more a matter of complexity than of nature. A crystal organizes, grows under the proper circumstances, and pieces of it, under the right conditions, produce more crystals. In this model, higher levels of complexity force each expression of organic life to seek resources in a more complicated way, but it is only a physical characteristic of the additional complexity. The process still has no real significance or purpose other than such forms replicating themselves up to their resource limit; there is no soul involved, only matter and energy in a strictly deterministic dance.

If life is merely an organized structure that competes with other structures for resources, then the universe certainly does not qualify as life. The universe does not compete for resources; it *is* the resources. The universe does not have any real organization because it is far too vast, and the forces of gravitation and electromagnetism are far too weak for it to have developed a coordinated organization over its entirety in the time and space allotted. Nor could it ever, because the expansion of the universe precludes its coming together in any form of complex organization that could be considered life.

CAROL BIERACH

Humanity is not in competition with the universe. We are the self-aware expression and purpose of that universe.

Indeed, life itself seems hardly special. Each life form competes for resources with every other life form, especially of its own kind, and so the ecosystem is not a coordinated structure but order arising out of chaos by natural selection.

This model for life, and the assumption of random development of all aspects of the universe, is the distinction of neo-Darwinian evolutionary theory. While the time allotted for this process—on the order of several billion years—seems sufficient, it is still far shorter than the time required for the random assembly of biochemical components to form even a simple working biological subsystem; for example, the process of photosynthesis is itself extremely complex. Nor does natural selection help speed this process. If two life forms are competing, they are competing immediately; future evolutionary improvements do not aid in competition until they manifest. Such improvements, though, consume resources; they are only an advantage insofar as they assist the organism in acquiring more resources than it consumes. The evolving organism is thus at a temporary and perhaps precarious disadvantage: If natural selection is operating strongly enough to drive evolution, it is operating strongly enough to eliminate partially developing—improving—organisms that are not as immediately competitive as other simpler and more efficient organisms.

Natural selection presents another difficulty if taken as the sole source of organization. Life, in the random model, does not involve inherent coordination. The order of the ecosystem is an additional level of complexity arising from chaos. If every life form competes without regard for—indeed, in competition with—every other life form, then the ideal life form would consume everything and, when that is done, hibernate until more resources arise. Ultimately, the flower and the bee are competing for resources together. Any mutually dependent relationship must be considered a life form in itself, in which that relationship competes for resources with other relationships. The ecosystem as a whole must finally be considered as one life unit, or else competition from within would rapidly dismember it. And just as the vastness of the universe greatly increases the time required for it to organize, the separation between individual organisms greatly increases the time required to develop mutual organization. If the random evolution of one aspect of life seems implausible, the random evolution of an entire interdependent system appears ludicrous.

AN ALTERNATE SCENARIO

The previous argument does not disprove random development, but it does suggest that the assumption of the existence of an intelligent design is as or more plausible than the assumption of no design. There is a methodology in science referred to as Occam's Razor, which states that the best hypothesis is the one with the fewest and/or simplest assumptions. Randomness was an acceptable assumption in the sense that it did not require the assumption of a designer, making it simpler. But if randomness does not fit the data, then more complex assumptions must be explored. Intelligent design fits the scientific criterion for a good hypothesis, except possibly where random development also falls short: Can an experiment be designed to disprove it? Is there additional evidence for intelligent design?

I submit that the very nature of the universe is the evidence: It is precisely tuned for the development of life. In the current scientific model, there are three fundamental subatomic interactions that separated from one another in the course of the expansion of the universe: strong nuclear, weak nuclear/electromagnetic, and gravitational. The development of the universe depends on the finely tuned ratios of the strengths of these interactions. Too much gravity, and the stars burn out too quickly; too little, and they never form. The hydrogen bond, fundamental to all organic chemistry, is extremely sensitive to this tuning. Without

the hydrogen bond, not only would ice sink rather than float (making the oceans inhospitable to life) but biochemical processes would simply not exist. Nor is it plausible that this tuning occurred randomly in a set of successively created and destroyed universes. The best understanding of science is that the universe had a well-defined beginning, and even if it were to contract and re-expand, this process could happen at most a few times.

The intelligent design model is the unifying concept between science and religion. Science deals with physical, repeatable, observable phenomena; religion deals with spiritual realities that are outside the realm of scientific verification. In that sense, they should neither conflict nor coalesce, because they would have nothing in common. However, there is an area where they intersect: history. Religion interprets the historical record by inferring how a deity could have caused it to happen. Science interprets the historical record by inferring how physical law could have caused it to happen. Note that history is not what actually happened; it is the information available to us as to what happened. Further, there are three areas of history that both science and religion can interpret: cosmological, biological, and human historical. So, science and religion can be compared in terms of their interpretations of these three types of history. In so doing, we find that the cosmological and biological historical evidence is most consistent with the intelligent design model, which ties in with the religious exploration of the nature of that designer and of the design, which is the universe itself.

LOVING THE CREATION

The assumption of an underlying order to the universe is the framework upon which every ecosystem hangs. With no canvas, there is no painting; the colors simply pool on the ground in a meaningless mess. In such a random universe, ecosystems are strictly local, without overall coordination. In an intelligent design model, the universe is intended and coordinated to be compatible and nourishing to life. A global ecology is not just a group of independent systems competing randomly, but a calibrated and coordinated organism in which matter, energy, and biology work together in overall cooperation. Local competition—natural selection—is a tuning process akin to exercise, improving the balance and genetic profile of each species and fitting it into its own unique place in the ecosystem. Thus, and in a very real sense, the universe itself is one entire ecosystem and is an essential and integral part of the fabric of life.

Indeed, the universe is the revelation of the pattern which underlies all other life. If the universe is designed, then there is the implication of a designer. If there is a designer, then the universe is the work of that designer, unveiling the nature and purpose of that designer to the extent we can understand it. While life as we know it may occur in a minuscule fraction of the volume of the universe, it is the most complex and highly tuned of all phenomena that we know. It could only have arisen under precise conditions and is therefore a deliberate part of the design.

Likewise, intelligent, self-aware life is only a small fraction of the ecosystem, but it is that piece which can in some way comprehend and appreciate the majesty and precision of the entire realm of creation. Humanity is not in competition with the universe. We are not the uncaring lords of all resources. We are the self-aware expression and purpose of that universe. We are life appreciating life and all that makes it possible. We look upon the beauty, power, and wisdom of the universe, and on its behalf we return its gratitude back to the designer.

Through science, we gain understanding of the physical organization of the universe and experience the wonder of its vastness, complexity, and precision. Through religion, we gain understanding of the nature of our relationship to the creator of that universe. In particular, the Judeo-Christian tradition sees that creator/designer as personal and desiring relationship with that part of the creation which can respond in awe, gratitude, and love. In turn, love for that creator, love for one another, and love and care for the whole creation and its wonderfully interacting and interconnected parts are the proper response of the self-aware expression of that universal design and creation, of which we are a part.

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