

The Way Things Are is the Way Things Have to Be

Review by Marcus Ross

Life's Solution: Inevitable Humans in a Lonely Universe

By Simon Conway Morris

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464 pp.

Writing on the heels of his final chapters in Crucible of Creation, Cambridge paleontologist Simon Conway Morris returns to the theme of convergence and its implications for our understanding of evolution in Life's Solution. Convergence (also called homoplasy in cladistic terminology) is the independent origination of similar traits among distantly related organisms. Life, argues Conway Morris, is replete with examples of convergence on every level. Molecules, cellular structures, macroscopic features, behaviors, and even particular types of intelligence all display convergences. It is the perhaps ubiquity of convergence that offers the most interesting insight into evolution: inevitability.

Conway Morris describes his book as a “Cambridge Sandwich”: a few set-up chapters in the beginning, two wrap-up chapters in the end, and the meat in the middle. The first stop on the road to inevitability is the origin of life itself. Conway Morris spends four of his eleven chapters on the building blocks of life: proteins, DNA, RNA and sugars (such as ribose). While noting that many of these building blocks are quite easy to synthesize via some chemical pathway or another, the actual origin of life is as unlikely an occurrence as can be conceived. Every twist and turn in the chemical maze toward life seems a dead end. The dream of a “one pot reaction” seems all but dead. Yet still, somehow, the spark of the animate occurred on the early earth, and the glorious diversity of biology is its legacy.

Following these chapters, Conway Morris spends one chapter looking at the uniqueness of our planet itself. Readers familiar with Peter Ward and Donald Brownlee's Rare Earth will see much that is similar: galactic and solar habitable zones, the metal

content of stars, and the importance of our moon. While Ward and Brownlee argued that complex life is rare in the universe, and primitive life is ubiquitous, Conway Morris takes a stronger position. He argues not only that complex life is rare or absent outside Earth, but that life *of any kind* is a phenomenally unlikely state of affairs in the universe. So unlikely, it seems, that perhaps life itself is unique.

Conway Morris next fixes his sights on constraints and inevitability in the biological realm. There are three ways, he argues, that constraints on evolution can be demonstrated: 1) considering viable alternatives, 2) constructing experiments that “rerun” evolution, and 3) determining the prevalence of convergence in past and present. He takes great time and care constructing his argument, casting a wide net into the seas of biology to draw out his examples, which are legion. While briefly touching on the first two points, chapters six through ten are dedicated to documenting the multitude of ways that life constantly manages to find the same kinds of solutions to various problems. Conway Morris does not argue that any *particular* organism (say, ants or moles or humans) is inevitable, but rather that various constraints on life yield inevitable kinds of solutions to life’s basic problems. Rerun the tape of life, says Conway Morris, and we shall revisit these themes again. And the tape, while not identical, will look eerily familiar to what we see today.

From the seismic communication of moles and termites to the multiple origins of silk, the ubiquity of chlorophyll for photosynthesis and rhodopsin for vision, life keeps converging on the same ways of doing things, despite the seemingly infinite variety of options available. Moles look and act like moles whether or not they are “true” moles, rodents, or marsupials. Intelligence seems to work on similar rules whether you are a dolphin or a human. Eusociality in insects, be they termites or ants, emerges repeatedly. And tool making emerges, to various degrees of sophistication, in primates, crows, and even a parasitic wasp. Perhaps previous estimates of available morphospace (both molecular and macroscopic) and behavioral space have been too generous. Indeed, contrary to accepted wisdom, Conway Morris’ theme is that “the evolutionary routes are many, but the destinations are limited.”

But the examples of convergence are anything but limited. After presenting four chapters of examples of convergence in all manner of biology, Conway Morris dedicates

his penultimate chapter to an integration of evolutionary theory (and its telic implications) with religious belief. While upholding a rigorously adaptationist view of evolution, Conway Morris nonetheless heavily criticizes those who adopt an evolutionarily reductionist belief system. Conway Morris labels such adherents to a cold, ruthless, and ultimately purposeless evolutionary reality “ultra-Darwinists”. Their heritage is that of Huxley, Simpson, and Mayr, and includes notable figures such as Ernst Haeckel, Clarence Darrow, and Richard Dawkins (who is described as “arguably England’s most pious atheist”). He finds fault with their “breezy self-confidence”, their token denial of purpose and meaning (all the while inserting meaning and purpose into their own writings), the religious fervor of their pronouncements, and their utter ignorance of theology.

Those who are sympathetic to the position of Intelligent Design may think that such criticisms of the “ultra-Darwinists” indicate that Conway Morris is likewise friendly toward ID, but such is patently not the case. Conway Morris is every bit as trenchant in his criticisms of those who harbor doubts about evolution as he is to those who seek to glorify it. In the preface to his book, he “politely” suggests that creation scientists and other antievolutionists not even bother to read the book. In the penultimate chapter, he considers those who disagree that evolution, writ large, is capable of answering the question of origins to be “unable or unwilling to comprehend the methods of science”, not to mention “simplistic and credulous.” Moreover, he brings forth the familiar charges of misquotation and deceit. In contrast, he praises the fields of physics and cosmology for their attempts to wed science and theology, but has no time for those who might disagree over the origins of biological complexity.

The criticism of ID and creationism is brief, taking up half of a paragraph after eight pages spent railing against the “ultra-Darwinists”, and followed by yet another salvo: four pages aimed at those who worship the all-powerful gene. It seems as if, among all his criticism of scientism and atheism, Conway Morris realized that he had left himself open to a charge of being a creationist. Lest this charge have merit, he must distance himself by making a handful of remarks castigating evolution’s principle foes. Yet Conway Morris *is* a creationist, albeit not in its more familiar forms. He does believe

that we live in a Creation, and that we have certain responsibilities to it (whether we fulfill them or not is another matter).

Theology, Conway Morris argues, will be the lifeline to our study of evolution. He concludes that evolution is congruent with the belief in a Creation in six ways: simplicity, a small ratio of actual to possible possibilities, sensitivity of process and product, the inherency of life, diversity with convergence, and the inevitability of sentience. Convergence is the key to understanding that evolution, despite its tremendous variety, is fraught with direction, or dare say, purpose. It is a bold statement that will undoubtedly receive a strong reaction from the bulk of the evolutionary community. From the ID and creationist communities, Life's Solution will likely receive a more tepid response. For all of the difficulties, directionality, and "purpose" that evolution entails, ultimately Conway Morris' views are incongruent with any strong design claim, such as detectability. Evolution, lest we forget, "is the way the world is." And Conway Morris' view is (ironically, much like Richard Dawkins') steeped in adaptation. Nature controls the course of evolution, but convergence, argues Conway Morris, tells us that perhaps a Higher Purpose controls Nature.