



Life's Solution: Inevitable Humans in a Lonely Universe

Reviewed by Michael Ruse

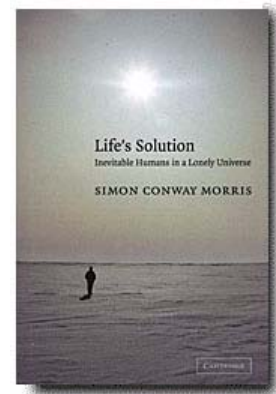
by Simon Conway Morris
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In one of his most popular books (*Wonderful Life*), the late Stephen Jay Gould singled out for special praise the work on the Burgess Shale (those well-preserved, soft-bodied, Cambrian organisms found in a deposit in the Canadian Rockies) of English paleontologist Simon Conway Morris. At the same time, however, Gould used Conway Morris's findings as support for his own thesis about the non-directedness of life's history. Gould argued that most of the Burgess Shale organisms went extinct, and pure chance determined which lost and which won. Hence, the history of life could easily have been different. In Gould's vivid metaphor, "the tape of life" replayed would always be very different from the time before. If we could put the clock back to the Cambrian (just over 500 million years ago), one has no guarantee that subsequent history would be as it has been.

Conway Morris objects strongly to this conclusion, and his new book, *Life's Solution: Inevitable Humans in a Lonely Universe*, provides an extended, science-based argument intended to support his conviction that the arrival of humans on this planet was both highly improbable (in the sense of any life appearing at all) and highly probable (in the sense of, life having commenced, intelligent beings were just a matter of time). Conway Morris's improbability-of-life arguments are fairly standard and, although updated by modern science, belong to the tradition going back at least to William Whewell who, in the middle of the nineteenth century, provided many reasons why life on earth is unique – the inhospitality of other

planets and other solar systems and so forth. (With the new findings that there was probably water on Mars, these arguments are perhaps less convincing already than when Conway Morris put pen to paper.)

More creative and interesting is the positive side to Conway Morris's argument, about the high-inevitable appearance of human-like organisms once life had commenced here on Earth. Conway Morris's basic starting position is that of Franklin and Marshall paleontologist Roger Thomas (among others), namely that only certain areas of potential morphological space are going to be capable of supporting functional life – in the language of the famed population geneticist Sewall Wright, that only certain areas of the landscape are going to be adaptive peaks. Conway Morris draws attention to the oft-noted absence of wheels in the living world. Given that wheels are such an efficient way of transporting loads, it seems very strange that, far from being ubiquitous, they are absent. We organisms have legs, wings, fins, and even slither, but no wheels. Actually, however, the reason why wheels do not normally exist is very simple. Wheels need flat, hard surfaces to function properly. Unfortunately, such surfaces are rare. "In the natural world as often as not, and especially on sea floors, this means acres of mud



pose?, I am uncomfortable with any natural theological approach that tries to support belief by appeal to nature. Too often, scientists change their minds, and the believer is left to scramble to shore up religious claims that no longer have strong empirical support. Far better to go with a theology of nature, that starts with faith, and then delights in the creation, whatever its nature and our contemporary understanding.

But let me not end on a negative note. Agree or disagree, Stephen Jay Gould and Simon Conway Morris are talking about important things. If you have not done so, read *Wonderful Life*. Then read *Life's Solution: Inevitable Humans in a Lonely Universe*.

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