Origins of Life

Freeman Dyson
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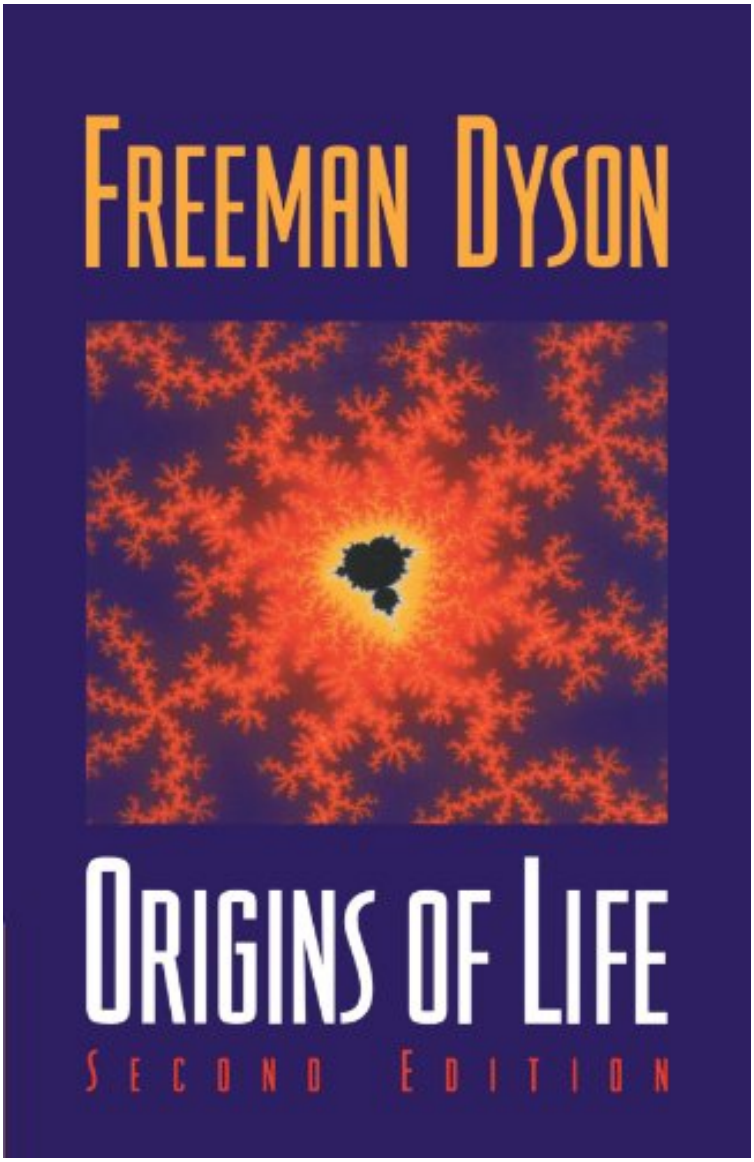

#402613 in Books Cambridge University Press 1999-09-28Original language:EnglishPDF # 1 8.50 x .39 x 5.43l, .34 #File Name: 0521626684112 pages | File size: 16.Mb

Freeman Dyson : Origins of Life before purchasing it in order to gage whether or not it would be worth my time, and all praised Origins of Life:

2 of 2 people found the following review helpful. The great mathematical physicist and famous essayist has looked at origins of life ...By Spatially MappedThe great mathematical physicist and famous essayist has looked at origins of life in this very short book. It is based on lectures given in 1985 on work some time before then, so it would appear to be

dated. And in some ways it is some more recent books, e.g., by Nick Lane (awesome!), have much more detail and much fuller stories. But then again, thats what its always like to be a theoretician. You look at physical basics, energy, etc., and build a model. And then see what falls out with respect to matching existing data and making experimentally verifiable predictions. The main question explored is on replication through information storage versus metabolism. Which came first. Dyson proposes a dual origin (of SW HW, parasite and host). Dyson writes nicely about previous work, even if some of it is a bit biased towards the great person view of history. But the bulk is presenting a simple model of metabolism, the plausibility of its origin, and experiments that could give some answers.1 of 1 people found the following review helpful. A great book on the theory of life on Earth.By john richard shanebrookThis book is about the history of theories on the origin of life. It is suggested that genes came after replication of molecules. Dyson, therefore, is of the opinion that life began twice, first came cells and later, genes. The book is written for the nonspecialist reader. It features an abstract mathematical theory , on the origin of life, that is so simple it must not be true. However, it combines those features of life that Dyson feels are essential. That is, looseness of structure and tolerance of errors. Dyson claims this looser view of evolution is supported by past experiments in microbiology. A final point made is that ,quasi - random structures are more important in evolution, than the Darwinian competition of replicating monads. I cannot help but note the somewhat humorous discussion on , junk DNA, and its useless biological role in life. Perhaps jokingly, Dyson suggests an analog in human culture where , " junk culture " is replicated. Examples include television commercials and political propaganda. I conclude this review with my assessment that Dyson was a genius to write these 77 pages of rather challenging theories. Unfortunately, it may take another genius to fully understand this book. I failed in this regard, but I learned much ! It is a great book that might jump - start new approaches to explaining the origin of life on Earth. Curiously, Dyson did not mention the concept of entropy. The book needs a Glossary.1 of 1 people found the following review helpful. Biblical verses Naturalism view of origins.By Pegasus-rtfNecessary for understanding true origin of life not the nonsensical evolutionary perspective.

How did life on Earth originate? Did replication or metabolism come first in the history of life? In the second edition of the acclaimed Origins of Life, distinguished scientist and science writer Freeman Dyson examines these questions and discusses the two main theories that try to explain how naturally occurring chemicals could organize themselves into living creatures. The majority view is that life began with replicating molecules, the precursors of modern genes. The minority belief is that random populations of molecules evolved metabolic activities before exact replication existed and that natural selection drove the evolution of cells toward greater complexity for a long time without the benefit of genes. Dyson analyzes both of these theories with reference to recent important discoveries by geologists and chemists, aiming to stimulate new experiments that could help decide which theory is correct. This second edition covers the impact revolutionary discoveries such as the existence of ribozymes, enzymes made of RNA; the likelihood that many of the most ancient creatures are thermophilic, living in hot environments; and evidence of life in the most ancient of all terrestrial rocks in Greenland have had on our ideas about how life began. It is a clearly written, fascinating book that will appeal to anyone interested in the origins of life.

From Scientific AmericanThe plural of the title is purposeful: Dyson advances the hypothesis that life had a double origin. "Either life began only once, with the functions of replication and metabolism already present in rudimentary form and linked together from the beginning, or life began twice, with two separate kinds of creatures, one kind capable of metabolism without exact replication and the other kind capable of replication without metabolism." He sees reasons to favor the second possibility, with metabolizing creatures appearing first. Dyson is a renowned theoretical physicist (professor emeritus at the Institute for Advanced Study in Princeton, N.J.) who offers an "apology for a physicist venturing into biology" by citing physicist Erwin Schrdinger's maxim that "some of us should venture to embark on a synthesis of facts and theories, albeit with second-hand and incomplete knowledge of some of them, and at the risk of making fools of themselves." In this new edition of a book first published in 1985, Dyson builds his argument with characteristic skill and clarity. He views his hypothesis as "useful only insofar as it may suggest new experiments." "...he [Dyson] makes strong arguments with real substance, going beyond the level of most popular science writing. Most impressive of all, Dyson writes succinctly and lucidly, fitting an amazing amount into 90 pages without ever appearing forced or hurried. Anyone interested in abiogenesis will find Origins of Life well worth the read." Reports of the National Center for Science Education"...provocative, entertaining, and, above all, makes one think." Episodes"In this new edition of a book first published in 1985, Dyson builds his argument with characteristic skill and clarity." Scientific American"...well-written, easily comprehensible monograph." Science Books Films