


# Oxygen: The Molecule that Made the World (Popular Science)

*By Nick Lane*

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**Oxygen: The Molecule that Made the World (Popular Science)** By Nick Lane

In *Oxygen*, Nick Lane takes the reader on an enthralling journey as he unravels the unexpected ways in which oxygen spurred the evolution of life and death. He shows how oxygen underpins the origin of biological complexity, the birth of photosynthesis, the sudden evolution of animals, the need for two sexes, the accelerated aging of cloned animals like Dolly the sheep, and the surprisingly long lives of bats and birds. Drawing on this grand evolutionary canvas, *Oxygen* offers fresh perspectives on our own lives and deaths, explaining modern killer diseases, why we age, and what we can do about it. Advancing revelatory new ideas, following chains of evidence, the book ranges through many disciplines, from environmental sciences to molecular medicine. The result is a captivating vision of contemporary science and a humane synthesis of our place in nature. This remarkable book will redefine the way we think about the world.

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## Editorial Review

From The New England Journal of Medicine
Nick Lane, the author of Oxygen, studied biochemistry at the University of London and did his doctoral research on oxygen free radicals at the Royal Free Hospital in London, but then left science to become the director of a multimedia company involved to a certain extent in medical education. His background suffuses this book, both for better and for worse. Apart from the first chapter, which is cast in a style approaching the juvenile, the book is very well written and easy to read. Lane makes his points clearly, and his lines of reasoning are well developed. The first half of the book is a very interesting and well-thought-out analysis of evolution, starting from the Archean eon and carrying on through the appearance of multicellular eukaryotes, such as humans. There is some awkward writing: "oxygen-hating" this and that, "first ever ice age," and a strained analogy about opinionated newspaper proprietors. Early in the book there are three or four statements that look like errors, but they are corrected later in the book. Of considerable interest, however, are Lane's remarks about chlorophyll arising from purple bacteria. Even more interesting is his comment to the effect that the oxygen-evolving complex in plants arose from an adaptation of catalase. He astutely points out that Fridovich's discovery of superoxide dismutase was "the most important discovery in modern biology never to win the Nobel Prize," a sentiment with which I heartily concur. The second half of the book begins with an excellent chapter on vitamin C, in which the author appropriately describes the outstanding work of Mark Levine and quotes Linus Pauling: "I would trust the biochemistry of a goat over the advice of a doctor." But subsequently, there is a mistake: Sue-Goo Rhee is referred to as a woman, when in fact he is a man. The rest of the second half, though informative in many places, is chiefly a buildup to the author's own theory -- namely, that aging itself is due exclusively to the damage caused by the leakage of oxygen radicals from aging mitochondria. In the course of the book, Lane takes a couple of shots at scientists for working on little pictures instead of the big picture. He takes little cognizance of the fact that big pictures, including the cause of aging, are made by the assembly of little pictures and that his own theory, probably only in part correct, was derived from many little pictures. He cites a few articles that support his idea but none that oppose it. Despite the inclusion of a small number of references, the book is not a perfect work of scholarship. But it is not meant to be one. It is a thought-provoking popularization of evolution and oxygen biochemistry, and I'm glad I read it. Its shortcomings notwithstanding, I can recommend the book strongly because of its informational content and its breezy and accessible style. It has to be read, though, with eyes open. *Bernard M. Babior, M.D., Ph.D.*
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Review

"A thought-provoking popularization of evolution and oxygen biochemistry."--*New England Journal of Medicine*

"Nothing less than a total rethink of how life evolved between about 3.5 billion and 543 million years ago, and how that relates to the diseases we suffer from today.... This is scientific writing at its best."--*Financial Times*

"A worthy effort with a clearly argued message, full of informative and entertaining details."--*American Scientist*

"Provocative and complexly argued."--*Kirkus Reviews* (starred review)

"One of the most thought-provoking books I have ever read."--John Emsley

About the Author

**Nick Lane** is an honorary research fellow at University College, London, and strategic director at Adelphi MediCine, a medical multimedia company based in London. His writings have appeared in numerous international journals, including *Scientific American*, *The Lancet*, and the *British Medical Journal*. He lives in London.

## Users Review

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**Rodney Mitchell:**

This Oxygen: The Molecule that Made the World (Popular Science) book is not really ordinary book, you have it then the world is in your hands. The benefit you receive by reading this book will be information inside this publication incredible fresh, you will get data which is getting deeper you actually read a lot of information you will get. This Oxygen: The Molecule that Made the World (Popular Science) without we realize teach the one who reading through it become critical in pondering and analyzing. Don't possibly be worry Oxygen: The Molecule that Made the World (Popular Science) can bring if you are and not make your bag space or bookshelves' come to be full because you can have it in your lovely laptop even cellphone. This Oxygen: The Molecule that Made the World (Popular Science) having good arrangement in word and layout, so you will not experience uninterested in reading.

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