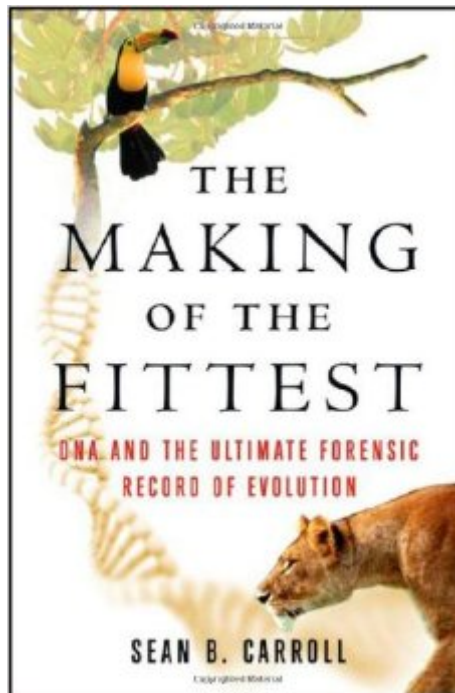


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# The Making Of The Fittest: DNA And The Ultimate Forensic Record Of Evolution



## Synopsis

DNA evidence not only solves crimesâ •in Sean Carroll's hands it will now end the Evolution Wars. DNA is the genetic material that defines us as individuals. Over the last two decades, it has emerged as a powerful tool for solving crimes and determining guilt and innocence. But, very recently, an important new aspect of DNA has been revealedâ •it contains a detailed record of evolution. That is, DNA is a living chronicle of how the marvelous creatures that inhabit our planet have adapted to its many environments, from the freezing waters of the Antarctic to the lush canopy of the rain forest. In the pages of this highly readable narrative, Sean Carroll guides the general reader on a tour of the massive DNA record of three billion years of evolution to see how the fittest are made. And what a eye-opening tour it isâ •one featuring immortal genes, fossil genes, and genes that bear the scars of past battles with horrible diseases. This book clinches the case for evolution, beyond any reasonable doubt. 50 black-and-white illustrations and 8 pages of color

## Book Information

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## Customer Reviews

Richard Dawkins wrote a very enjoyable book titled The Ancestors Tale. It traces our evolution backwards, from humans, through apes and monkeys and so on, back to simple one-celled organisms. It tells the who of evolution: which species were descended from which. The Making of the Fittest tells the how and why: how variations appear in organisms and why they survive, or don't. This is the story of natural selection. Darwin told the story, but a lot more has been learned since then, especially in recent decades, and Sean B. Carroll has been one of the discoverers. But, unlike many researchers, he can write a readable book for beginners. Carroll focuses on DNA because

that's of prime importance. When DNA is copied, for the reproduction of the cell or the organism, the copy is not always exact. The new variant is usually harmful, but might be helpful. Carroll shows, using elementary arithmetic, why helpful variants occur and prosper much more often than most people would guess. Keep in mind that, when a bad gene does come along, the organism usually dies and the gene disappears from the pool. The good genes usually accumulate. Carroll tells the story mostly through examples. For example, we humans are descended from animals that could see only 2 colors. Carroll tells of the duplication of the gene for one of the colors and the mutation of the second copy to react to a third color. (I simplify; Carroll tells more of the story.) Duplication and subsequent mutation of genes is very important in evolution. It allows organisms to develop new capabilities without losing the old. Another important mechanism involves genes which control the expression of other genes.

There is a notorious book for creationists titled Evolution: The Fossils Say No! It gets right to its point in its title which accomplishes two things. One is to claim that fossils do not say what overwhelmingly biologists and geologists say they say. The other is to emphasize that fossils are the chief evidence evolution can muster. That might have been true a hundred years ago, but now, even if we had no fossils to study, we would still have wonderfully abundant evidence of evolution happening and just how it happened. We can now look directly at the DNA in animals that have evolved from previous ancestors and see indubitable chains of linkage. Sean B. Carroll, a professor of genetics, relates the stories scientists are coaxing from the molecules of genes in The Making of the Fittest: DNA and the Ultimate Forensic Record of Evolution (Norton). He points out in his preface that there is wide public acceptance and understanding of DNA testing in solving crimes; DNA can provide testimony about who was present at a crime scene with far more trustworthiness than fingerprints or eyewitness recollection. Yet polls consistently show that something like half of the public in the United States are more likely to go with the anti-Darwinian ideas in Evolution: The Fossils Say No! than they are to subscribe to the theory of evolution. It is Carroll's aim to have readers consider the DNA evidence for evolution as strong as DNA evidence from crime scenes, and his clear and entertaining book does just that. "Every evolutionary change between species, from physical form to digestive metabolism," he writes, "is due to - and recorded in - DNA. So, too, is the 'paternity' of species. DNA contains, therefore, the ultimate forensic record of evolution.

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