the new and exciting developments which emerge virtually every week, the book should be regularly revised every couple of years to keep the issue at the forefront in the hotly contested fields of intelligent design and creation science. This is particularly important given the fraudulent rhetoric actively promulgated by theistic evolutionists and popular science authors.

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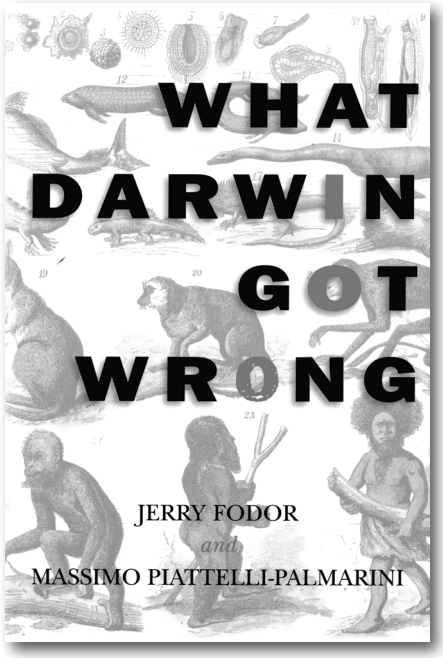
Natural selection—evolution's phantom mechanism

A review of
What Darwin Got Wrong
by Jerry Fodor and Massimo Piattelli-Palmarini
Farrar, Straus and Giroux, New York, 2010



Jean K. Lightner

This book is not a creationist or intelligent design book. In fact, it was written by two men who consider themselves atheists, have no problem with the idea of common descent, and assume "that evolution is a mechanical process through and through" (p. xiii). So what is it that the authors believe Darwin got wrong? The mechanism for evolution; namely, the theory of natural selection.

Jerry Fodor and Massimo Piattelli-Palmarini are professors of cognitive science at their respective universities. Fodor also has expertise in philosophy while Piattelli-Palmarini began his career as a biophysicist and molecular biologist. Information from these diverse fields is brought together in this book as the authors argue that natural selection cannot be a major mechanism for evolution.

Organization of the book

Prior to the first chapter, the book has a section entitled Terms of Engagement. This provides some introductory comments along with an outline of what is discussed in the various chapters. It is here the authors warn that they will embark on numerous digressions, a promise they certainly keep. These digressions make the book difficult to follow at times, but the authors work hard at tying these thoughts together.

In the first chapter the authors ask: "What kind of theory is the theory of natural selection?" They compare evolutionary theory to B.F. Skinner's theory of operant conditioning. Initially they look at both as a black box (i.e. what the theories propose to do). They elaborate on six postulated strong constraints in which the two theories are essentially identical. They then 'open the box' to look at the mechanism by which they are said to operate. In each case there is a random generator of traits and a filter which can influence the persistence of those traits. This comparison is frequently referred to later in the book, as the authors argue that natural selection fails for many of the same reasons the theory of operant conditioning has failed.

The remainder of the book is divided into two sections. The first, chapters two through five, presents the biological argument. Here numerous advances in the field of biology are discussed as they have relevance

to the inadequacy of the theory of natural selection. In the second section, chapters six through nine, the authors deal with the conceptual situation. This portion is more philosophical in nature. In chapter nine the authors work to bring all the pieces together and provide a summary of the arguments that began in chapter one.

The nine chapters occupy only 163 pages. There is an appendix which examines various quotes from the literature demonstrating that Darwin's ideas remain incredibly influential in the fields of psychology and philosophy of the mind. This is followed by notes on the chapters where the authors put bits of information and explanatory comments that they found interesting and couldn't resist including. Given the propensity of the authors to find bunny trails, which were somewhat related but tended to result in much meandering before reaching the destination, this seems a prudent way to organize such comments. The notes occupy over 40 pages. Finally there is a list of resources and an index.

Despite the brevity of the book, it is certainly not a quick read for most people. I found the authors' style enjoyable with appropriate humor scattered throughout. However, the authors challenge the reader to think deeply in diverse areas. It often takes a while to recognize why the authors are exploring a topic that on the surface may seem unrelated. Yet I found the book well worth the effort. Here, I summarize some of the authors' points that I found most interesting.

The prevalence of Neo-Darwinian thinking

One concept the book brings out is the extent to which neo-Darwinian thinking has influenced multiple scientific fields outside biology, including philosophy, psychology, and semantics. In fact, the 15-page appendix is devoted to extended quotes and discussion of this. The ubiquity of Darwinian thinking in our society is certainly not a new concept. Much has been written about how Darwin influenced politics, particularly the policies of Hitler and Communist despots who are notorious for having killed masses of people. The effect of Darwinian thought in science and psychology has also been explored before. However, I appreciated how the book brings out some of these points.

The authors mention that they know people in the fields of 'wet' biology who are not 'that' kind of Darwinist. In other words, these experimental biologists, while likely accepting common descent, do not agree that natural selection is a major mechanism for evolution. In spite of this, Darwinian dogma on natural selection remains firmly entrenched in many areas, both within biology and in other fields. This highlights the 'power of the paradigm' problem where ideas that have been shown to be fallacious can live on for decades. It is helpful to realize that what is promoted as 'scientific fact' on a popular level in our culture can often differ markedly from what scientists in the field really believe.

No genetics in a bean bag

Bean bag genetics refers to the idea that the phenotypic traits of an organism are like colored beans in a bag which exist independent of each other. Changing a trait by mutation was viewed to be the same as exchanging one color bean for another. This is consistent with the neo-Darwinian idea that variation in traits is generated randomly and it is the environment which selects them. The problem is that this idea is not consistent with what we know about genetics.

In reality, there are a number of internal constraints that affect the generation of phenotypes. There are single genes that can affect a variety of traits (pleiotropy). There are individual traits that are influenced by many different genes. The authors spend a bit of time discussing the unanticipated finding that many genes were found to be largely the same in vastly different species. Many of these are regulatory genes, and their existence is interpreted in an evolutionary (common descent) model, while the authors acknowledge the problem these discoveries make for natural selection (i.e. they challenge the idea that change is driven primarily by environmental factors). From a creation perspective, these patterns of gene similarity fit well with the belief that the Creator reused various design elements in separate creations. It is possible their reuse is due to functional constraints. It is clear that their reuse is beneficial to humans from a research perspective. In fact, medical research depends heavily on such similarity, as mice are commonly used as models for human disease.

The authors discuss the reality that mutations are not random (e.g. hotspots exist). They also point out that even if they were random, their effects on phenotype would not be. A variety of biological discoveries are surveyed (microRNAs, chaperones, alternative splicing, gene networks and signaling pathways) which challenge postulates of natural selection discussed in chapter 1; namely, that evolution is a gradualistic process where small phenotypic changes generated at random are then filtered by environmental constraints.

This discussion in the biological section (chapters 2–5) was my favorite part of the book. I was familiar with a fair amount of the content, but I learned some valuable new things along the way. This section would be helpful for anyone (creationist or otherwise) who finds 'just so' natural selection stories satisfying. The authors maintain their view that naturalistic processes can explain these phenomena, consistent with their clearly stated starting assumptions. In that respect I am happy to operate within the creation model. I would not want to be in the position of trying to explain optimal design (chapter 5), which exceeds that of the best human engineers, by mindless naturalistic processes.

Intensional fallacy: can natural selection choose?

One major criticism of neo-Darwinism centers on the confusion of two non-identical claims: 1) natural selection is "a process in which *creatures with adaptive traits are selected*", and 2) natural selection is "a process in which *creatures are selected for*

Photo by Einar Einarsson Kvaran

Figure 1. Figures are carved in the spandrels between the arches of this building. Although one might conclude that the spandrels were 'chosen' for the building so the sculptors had a place to decorate, spandrels naturally show up when arches are used in the architecture of a building.

their adaptive traits" (p. xv; emphasis in original). They argue that neo-Darwinism is committed to infer 2 from 1, which is invalid. This is known among philosophers as an intensional fallacy.

In chapter 6 considerable time is spent expanding on an argument proposed by Gould and Lewontin in 1979.[1] It deals with the issue of 'free-riding', where non-adaptive traits are associated with adaptive traits. They use the analogy of cathedrals that have arches and spandrels, triangular-shaped areas where the arches converge. One can recognize the purpose of the arch, namely to support the dome. One could also propose a purpose for the spandrels, e.g. a nice space for attractive artwork. Although many seemingly plausible reasons could be suggested, the reality is that all such 'just so' stories are false. The spandrels naturally show up when arches are used in domed buildings—they were not designed as spaces for artwork.

The reality of 'free-riding' creates a problem for natural selection. While one can always come up with a story about how a certain trait is adaptive, there is no way in the real world to determine if the story is true. A second related problem is that natural selection is often compared to artificial selection. However, breeders have a mind and choose what they select for. You can ask the breeder what they had in mind to determine if a trait was selected for or just a free-rider. Despite the pervasive anthropomorphizing that goes on, even to an extent in the scientific literature, natural selection does not have a mind. The authors do a nice job of driving home the point that artificial selection is not really a good analogy to natural selection because the first has an intelligent agent while the second does not. Theoretically, the former might have the foresight to prop up a less fit intermediate form because the fully formed feature will have an advantage. Natural selection has no foresight so cannot cross a local minimum in 'fitness space'.

Science or history?

I found it interesting that the authors recognized the historical nature of this topic. How creatures change over time is not explained by some law of nature, but may be explained through 'plausible historical narratives'. Historical narratives are inherently *post hoc*. It seems to me that Darwin attempted to find a 'natural law' to give his ideas clout, and creationists can fall into the same trap. I agree with the authors that the complexity of living things militates against the belief that a few simple scientific laws can explain the changes we see (or don't see) in living things over time.

There are some implications of this I'd like to expound on. Which historical narratives are considered plausible will be largely dependent on the underlying philosophical assumptions of the one presenting it. I have seen several examples where strong patterns of protein or DNA sequence differences were attributed to natural selection, often with 'statistical support'. However, on closer examination it appears that natural selection did not play an important role in producing the patterns.[2] We need to be cautious about automatically accepting easy explanations; we should be willing to dig deeper to see if the explanations are really plausible.

Much of this is significant to the creation/evolution debate. Historical narratives by evolutionists which are purported to explain things like the origin of feathers, limbs, eyes, etc. would be rejected by creationists. The idea that God created creatures according to their kinds is rejected without consideration by evolutionists. A person's perception of plausibility is often heavily influenced by their worldview.

Of course, it would be dangerous for creationists to dismiss all evolutionists' historical narratives without consideration. Many of these involve changes within created kinds, which creationists need plausible explanations for. It is fair to mention a given explanation as a possibility if it seems plausible, but it seems ill advised to promote these 'historical narratives' as 'the answer' to why certain patterns appear in nature. This is particularly true where natural selection is given as the cause of the pattern. Even John Endler, in his 1986 book promoting natural selection, points out that natural selection is more often inferred than demonstrated.[3] Other plausible mechanisms (e.g. migration, genetic mechanisms including gene conversion, and epigenetic effects) need to be considered as well.

Conclusions

This book, written by authors who are upfront about their atheistic evolutionary viewpoint, presents an interesting challenge to the idea that natural selection is a major mechanism for evolution. The authors are refreshingly honest about their assumptions and make many insightful comments. In many ways their style is entertaining and enjoyable. Although they make it clear they do not agree with creation or intelligent design, they do not resort to the usual cheap shots on these. Instead they focus on issues relevant to natural selection.

This book can be a challenging read since the authors pulled from many diverse fields. However, I consider it valuable for someone who really wants to understand natural selection. There are certainly many additional points one could discuss related to how natural selection, even within the creation model, is seriously misunderstood and overrated. Still, this book provides a decent introduction to many of the issues involved.

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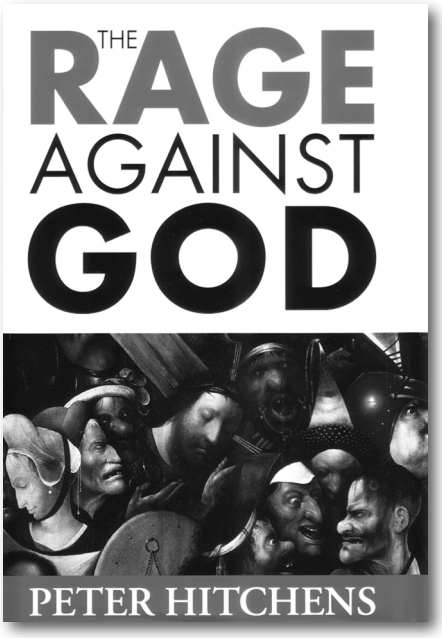
The totalitarian intolerance of the New Atheists

A review of
The Rage Against God
by Peter Hitchens
Continuum International Publishing Group, London, 2010



Dominic Statham

Peter Hitchens is the brother of the prominent atheist Christopher Hitchens. He is an award-winning columnist and author, and currently writes for the British newspaper, *The Mail on Sunday*. Unlike his brother, Peter professes a Christian faith. Although he would not describe himself as a biblical fundamentalist, and would not argue for a literal interpretation of Genesis, he is a confirmed member of the Church of England and a strong supporter of Christian values and Christian morality. He has, however, not always been sympathetic to Christianity. In fact, as a teenager, he had rejected the Christian beliefs with which he had been raised as a child—even to the point of publicly burning a Bible—and joined the generation who were 'too clever to believe'. He embraced 'the faith of the faithless age', that science could explain everything we needed to know without reference to God. So vehemently had he turned away from God that he was almost physically disgusted by those who believed (p. 74).

In his book, Peter describes his journey from atheism to faith and refutes three of the common arguments presented by atheists—that conflicts fought in the name of religion are really about religion; that it is possible to know right from wrong without acknowledging the existence of God; and that the failed atheist states like the Soviet Union were not truly atheist. In the final chapters he warns of the totalitarian intolerance of the New Atheists, their determination to drive out the remaining traces of Christianity from the laws and constitutions of Europe and North America, and their desire even to wrest from parents their freedom to raise children in a religious faith.

The fruit of atheism

Peter wrote that his own views changed slowly, as he came to see the fruit of atheism. Part of this realisation came when he was working as a journalist in Moscow, during the final years of the Soviet Union. His depiction of this godless society was sobering. He wrote of the riots that broke out when the vodka ration was cancelled one week; the bribes required to obtain anaesthetics at the dentist or antibiotics at the hospital; the frightening levels of divorce and abortion; the mistrust and surveillance; the unending official lies, manipulation and oppression; the squalor, desperation and harsh