Design by intuition: good biology, naive philosophy

Undeniable: How biology confirms our intuition that life is designed

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Douglas Axe is the director of the Intelligent Design (ID) group, Biologic Institute (not to be confused with the theistic evolutionary syncretistic group, BioLogos) and a molecular biologist by training. In *Undeniable*, Douglas Axe has written an Amazon top-selling book addressing how biology confirms our intuition that life is designed. By appealing to probability, Douglas Axe gives numerous examples showing why naturalistic evolution is not only improbable, but scientifically impossible.

The book is written for the non-scientist. For this reason, much space has been devoted to the use of elaborate analogies in order to simplify complex technical details. Interwoven between these analogies are personal stories and an overall narrative approach to the book. At times, this causes the book to come across as slow, repetitive and unnecessarily drawn out.

For lack of a better comparison, if one were to compare the writing style of *Undeniable* with Jonathan Sarfati's *By Design* (2008)—both books discussing design—the feel is that one chapter of *Undeniable* would have the same amount of scientific content as two or three pages in Sarfati's book, with the latter being far more concise and easy to understand. Apart from the excessiv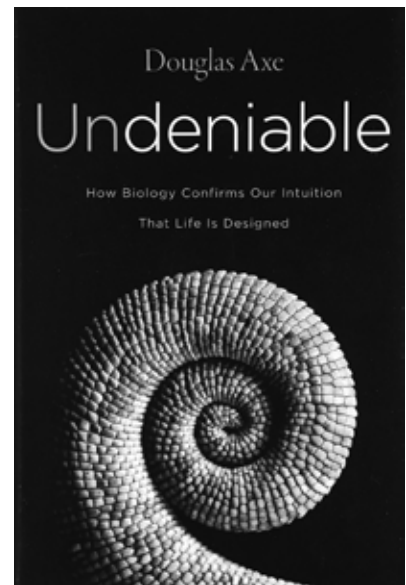e wordiness, the science contained in *Undeniable* is sound, though it falters when it comes to its philosophy of science. This book will prove to be a challenge for those who hold to naturalistic evolution.

Philosophically naive

Unfortunately, as it is with most ID books, *Undeniable* comes across as somewhat epistemologically naive. Axe correctly draws a distinction between creationists and the ID movement. At times throughout the book, Axe even appears to hold to contradicting philosophical positions. For example, he rejects scientism on the basis that our intuition tells us that design requires a designer (p. 49) yet at the same time rejects the inference to God by creationists since "Intelligent Design takes a minimalist view", and there is a jump from intelligent designer to God (p. 50) that goes beyond science.

But if one cannot infer beyond science, then how is one not stuck with scientism? Either we infer beyond science, or we are stuck in scientism (which Axe also rejects). A naturalistic intelligent designer is still a designer within naturalism. But if the designer is not naturalistic, then one must infer beyond the boundaries of mere science. Worse, towards the end of the book, Axe himself does what he says creationists ought not to do, by saying that the designer only makes sense if it is God.

It is necessary to understand the limitations of science as an epistemological enterprise. Using a presuppositional approach, the biblical creationist starts by deducing propositions about creation and God from the Bible. He might use inductive inferences in building scientific models, but since induction is always a formal logical fallacy, scientific models are always held loosely and never elevated to the same epistemic level as Scripture. This is the reason why there are often multiple scientific models that may be invoked to explain any given phenomenon, and why scientific models themselves are often discarded when further scientific research is carried out. This is also the reason why it is necessary to hold to biblically deduced propositions authoritatively and scientifically inferenced models loosely.

The Bible provides the epistemological justification for the Christian's claim for truth. Why is truth knowable? Why can man know that the logic he uses in all that he does is trustworthy as a means of obtaining truth? The biblical creationist can appeal to Scripture as his foundation. The Bible tells us that God is Truth. It tells us that God revealed truth to man through His Son, and man can understand the truth and either accept or reject it (John 1). So the Scripture provides an epistemic foundation for why man can know truth. The existence of God is not something that is induced/inferred. Rather, it is something that is deduced

from the propositions of Scripture. However, the ID approach (as it is with *Undeniable*), operates solely on the shaky epistemic foundation of induction/inference. Thus, it has an epistemologically unstable foundation.

Axe declares that

"… we must accept that objective truths exist, as we all naturally do. Then we must accept that some of these truths pertain to the physical world, and that some of those can be discovered through human observation and reasoning" (p. 48).

But how can we know that what we claim to be true is indeed true? How can we know that logical thinking is trustworthy as a means of obtaining truth; or that what we call *Logic* is not merely an approach that provides a selective advantage? The sense one gets from reading the book is that the author thinks that the evidence speaks for itself and this is the basis for what he later calls 'common science', and 'design intuition'. There is hardly any discussion on how presuppositions shape the way one interprets the evidence.

Throughout the book, Axe repeatedly appeals to how we know there is a designer based on what he calls a "universal design intuition" [*sic*]. Axe's rejection of scriptural presuppositions means that he cannot appeal to passages like Romans 1:18–20 for an epistemic foundation. Thus, he is left with an argument 'from intuition'. As an epistemic foundation, this comes across as philosophically naive.

The science

Fortunately, the science in the book is excellent. If there is anything I dislike about the science, it would be that some of its analogies are over simplistic; but this is understandable since one of the objectives of *Undeniable* is to explain complex scientific concepts to the lay reader.

Chapter details

Chapter 1

After a brief introduction in chapter 1 of how he came to be involved in ID research and some personal anecdotes on the persecutions he has experienced for doubting evolution, Axe introduces his *design intuition* in chapter 2.

Chapter 2

Imagine filling a large pot with alphabet-shaped pasta and boiling it into a soup. Would we expect to see the pasta letters forming complete instructions for building something new and useful that is worthy of a patent? Of course no one would believe this can happen. This is what Axe calls the universal design intuition. We all recognise that "tasks that would need knowledge to accomplish can be accomplished only by someone who has that knowledge" (p. 20).

Chapter 3 and 4

Axe distances the ID movement from the creationist movement. He argues that science does not require scientism/materialism. Axe rejects creationism because it presupposes a particular understanding of Genesis and then seeks to reconcile science with it. On the other hand, ID starts with science alone and follows its conclusion to an intelligent designer because of what we know from scientific principles. He emphasizes that we cannot jump from an intelligent designer to God because that requires us to go beyond science.

In other words, Axe rejects the possibility of ID leading us to any theological conclusion. Instead, Axe argues for the intelligent designer based on intuition. To be fair, when Axe speaks of intuition, he usually first discusses mathematical improbabilities, and from there, intuits that there must be an intelligent designer. Axe clearly rejects the

presuppositional approach of the creationist movement. Unfortunately, later in the book, Axe inconsistently does what he claims we should not do—he claims that God is the best explanation for the intelligent designer.

Axe compares the alphabet soup analogy in the earlier chapter with gene sequences and proteins. He uses the analogy of a car: the proteins are the mechanical parts of the car and are essential to life. The information for making these proteins are written in the DNA based on a four-letter genetic code. These are too complex to be accounted for without an intelligent designer.

Axe then narrates how his involvement in ID resulted in him eventually losing his job. The real problem, according to Axe, is not about having agendas, but the institutionalization of agendas, where those who hold to minority views are actively suppressed.

Chapter 5

Axe recalls how Michael Denton wrote that accidental processes would be incapable of forming new functional proteins if their amino-acid sequences were rarer than one in 10^{40}. Axe's research showed that one such protein sequence would appear for every 10^{74} wrong ones— 10^{34}-fold rarer than Denton's criterion. This deals a decisive blow to the idea that proteins arose by accidental causes.

Axe introduces the phrase "common science": everyone validates their design intuition through first-hand experience. This experience is scientific in nature because we all make mental notes of what we observe, and then build conceptual models of how things work. Hence, since this is broadly defined as 'science', all humans are in this sense 'scientists'. Aside from technical issues, "people who lack formal scientific credentials are nonetheless qualified to speak with authority on matters" of the world around them. This is what Axe calls common science (p. 64).

Chapter 6

In this chapter, Axe introduces the phrase 'whole project' and 'busy whole'. A whole refers to something that is more than just a sum of its parts. For example, a spider or a pool cleaning robot is a whole. If you divide a spider into its parts, you will not get a smaller spider. In contrast, a cloud or a rock is not a whole because if you divide it up, you will get smaller rocks or clouds.

Axe also makes a distinction between different kinds of wholes. For example, he calls things that look as if they are trying to accomplish something 'busy wholes'. A 'busy whole', then, is "an active thing that causes us to perceive intent because it accomplishes a big result by bringing many small things or circumstances together in just the right way" (p. 68). Living things are example of 'busy wholes'. When we see a 'whole project', our design intuition causes us to recognise the need for skilled work, and for the need of discernment to decide between right and wrong things. Discernment in turn requires knowledge, which then in turn requires a knower. Similarly, when we look at the human body and see how all the different systems and organs come together, we can intuit that there was an intelligent designer.

Axe gives the example of two enzymes, *Kbl* and *BioF*, which are functionally different yet strikingly similar in structure. The goal was to see if one enzyme could evolve to the other. His conclusion was that this was mathematically improbable. Therefore, mutations alone cannot account for the complexity we see in whole systems. Furthermore, natural selection can only select what is already first present. Thus, natural selection also cannot be used to account for what we see in nature.

Chapter 7

Imagine that there is a noise-seeking robot that is dropped randomly on Earth and its purpose is to find the closest football stadium by tracing the source of the loudest noise. If it is fortunate, it will be dropped near a football stadium so that it does not need much effort to find the stadium by following the loudest noise. However, what are the chances that a randomly dropped robot would be near a stadium? If it is too far away, competing noises from nearby sources might be louder than a faraway stadium, and the robot would be led to the wrong location.

How does this relate to evolution? Natural selection, according to Axe, is like the homing system of the noise-seeking robot. It only moves a species towards an existing 'fitness signal'. But natural selection has a problem when dealing with complex structures. For example, for lungs or hearts to function, there is a need for many other small components to come together on their own via natural selection. But if each smaller component itself does not confer any distinct advantage individually apart from the whole, natural selection cannot move it in the right direction. It would be like one of these noise-seeking robots that has been dropped so far from a stadium that no noise could be detected. It takes insight to put together all the parts necessary for something like a heart. Axe finds it hard to see how this can be attributed to accidental causes.

Chapter 8

Can inventions happen by chance? Imagine Earth as our search area, and our target is a small indentation on a plaque on the ground that lies between the boundaries of Colorado, Utah, New Mexico, and Arizona (figure 1). If we drop 2,000 pins at random all over Earth, what is the chance that a pin would land in our target spot?

Using another analogy, Axe asks the reader how many possible images can be stored on a 300 pixel by 400 pixel image. The number would be a single line of numbers stretching across 198 pages. In comparison, all the atoms in the universe can be represented with an 80-character line of text.

Axe likens these examples to what we see in nature and concludes that

Photo: Rich Torres, Four Corners Monument, Wikipedia.

Figure 1. Plaque that lies on the boundaries of Colorado, Utah, New Mexico, and Arizona

the probability for random chance to explain what we observe is so remotely improbable that it requires more coincidences than the whole universe could physically produce. While it is theoretically possible for extremely remote possibilities to happen, we should reject it if we find it to be practically impossible (p. 117).

Chapter 9

Invention requires three stages. The mental stage where the concept is thought out, the methodical stage where the details are planned out, and the mechanical stages where the details are implemented. Invention is thus a top-down, deliberate action.

Axe coins the phrase "functional coherence". This is defined as "the hierarchical arrangement of parts needed for anything to produce a high-level function—each part contributing in a coordinated way to the whole" (p. 144). To illustrate this, imagine alphabets. We can arrange alphabets to type out a word that has a basic meaning. To go one level higher in the hierarchy, we would need to arrange words in a certain grammatical order in a sentence in order to convey an intelligent message.

If my intention were to convey to my readers an extended thought process, I might need to take this even one level higher, so that I have many sentences, "each carefully crafted out to make its own point in a way that coheres with the preceding points and paves the way for subsequent points" (p. 145).

All these different sentences arranged together in a multi-level hierarchy forms what Axe calls functional coherence. According to our design intuition, such instructions can only come "from someone who has a mental grasp of the procedure being conveyed and of the language in which it's to be conveyed" (p. 145). For random keystrokes on a keyboard to produce a half page consisting of

actual words, the chance is one in a number that would take 11 lines to type out. In contrast, the number of atoms in the universe would only take two lines to type out. In other words, high-level functional coherence cannot result from a random chanced process.

Chapter 10

"Unlike human inventions, living inventions are all-or-nothing wholes. Every cell in the body both sustains the body and is sustained by the body. Life is never anything but whole" (p. 178).

Axe goes through several examples in living things and concludes that living things display functional coherence at a scale that is beyond human ingenuity. Functional coherence in nature undermines evolution.

Axe concludes that nature can only be reasonably explained as having come from the mind of God—nothing else makes sense (p. 185). This statement is especially perplexing, since earlier in the book, he attacks creationists for a deficient logic when they jump from an intelligent designer to God.

But this accusation is a strawman argument because presuppositional creationists start with biblical propositions, and then deduce God from the Scripture. They do not infer from design alone to God—so there is no 'jump' in logic. However, Axe rejects the presuppositional approach and instead must rely on induction and inferences from science (such as design intuition) to get to an intelligent designer—and then have a 'jump' in logic to get to God. So it appears that the error he wrongly accuses creationists of committing ends up being the very error he himself commits.

Chapters 11 to 14

These chapters pretty much sum up what Axe wrote in the earlier chapters with more examples from nature and some discussion on the

mind-body problem. He dismantles Dawkins' famous "Methinks it is like a weasel" (pp. 198–204) analogy by pointing out that Dawkins knew that his example wasn't blind evolution. Even if it was, Axe points out that it is "not that blind processes are incapable of producing any functional coherence at all but rather that they are incapable of producing it in the amounts needed for useful inventions" (p. 201). Dawkins' selection of the Shakespearean sentence only worked on the basis of what Axe calls 'selective optimization'; yet "Selective optimization proves valuable only by being cleverly employed by someone who knows what it can and cannot do" (p. 209). Random mutations cannot do this.

A naturalistic explanation of living things cannot explain "the origin of new species [*sic*] or even the origin of new genes" (p. 221). Instead, Darwinism assumes "the prior existence of the entities whose features it is meant to explain" (p. 221). Since evolution cannot account for how an enzyme could evolve into another form (i.e. from enzyme *Kbl* to *BioF*), it cannot explain the evolution of every life form from a supposed ancestral microbial species.

Conclusion

Overall, this is a useful book where the science is concerned, but it does not add much to what has already been discussed in ID circles. The analogies used do come across as being excessively long-winded at times. Sadly, when it comes to philosophy of science, I cannot help but find this book deficient.