MYTHS, MATERIALISM, AND MODERN SCIENCE

Richard Dawkins, The Magic of Reality. New York: Free Press, 2011.

Professor Richard Dawkins has written a unique book. *The Magic of Reality* is aimed at an audience twelve years and older, presenting modern science as answering a number of questions better than numerous ancient myths. The presentation is clear, the concepts and content are easy to follow and the language seems just right for a budding teenage audience. The question you are probably asking is: Why are you talking about a children's book in a Dominican journal? Simply this: basic assumptions are crucial in education.

As many of us know, most of our basic assumptions about reality and the world come from our childhood, especially our primary and secondary education. Anyone reading this journal can probably think of a time when some "myth" from school was dispelled by further learning and reading. "You mean Christopher Columbus was not the first person to think the earth was round?" "Wait, atoms were not discovered by Isaac Newton?" These experiences remind us that most of our basic assumptions of the world are formed in early education. So, looking at a children's book on science by Dawkins gives us a window into what the newest *basic assumptions* might be, and perhaps prepares us to deal with them better.

We can acknowledge that the book presents well the most recent scientific accounts of reality. The problem with the book is not the science *per se*, but the two large assumptions made in this presentation: one explicit, one implicit. The explicit one is, of course, that modern science is the only true source for an account of reality. The more questionable and insidious assumption is implicit: Christianity is *exactly* like ancient myths—it is false and made-up by humans enslaved by superstitious thoughts. The "modern science only" account of reality is not what is most disappointing; we are already familiar with that approach by now. What most hurts the potential for the book's success, and what renders it dubious, is an unconcealed confusion of Christian accounts with mythic accounts.

The Magic of Reality – Overview and Review

Dawkins sets out to compare the magic of modern science with the mirage of myths. "I want to show you that the real world, as understood scientifically, has magic of its own—the kind I call poetic magic: an inspiring beauty which is all the more magical because it is real and because we can understand how it works" (31). The book comprises twelve chapters, each focusing on a particular question. For example, chapter three asks: "Why are there so many different kinds of animals?" Chapter eleven asks: "Why do bad things happen?"

Each chapter contains two parts: first, a number of ancient myths are given which seek to answer the question. This is followed by the answer offered by modern science. There is thus a very clear distinction made between "false myth" and "true modern science." Fraught as this dichotomy may be, Dawkins' approach seeks to get kids interested in modern science as a problem-solving enterprise. There are a number of well-presented concepts, five of which I will mention.

In the first chapter, "What is reality? What is magic?", Dawkins discusses modern scientific epistemology or the process of knowing in an easily understandable manner. One would expect in a book from an arch-scientist to find little philosophical reflection on the nature of modern scientific inquiry; usually methodology is ignored with a naïve confidence in modern science's direct grasp of truth.

But Dawkins, in one of a number of surprises, shows that modern science only seeks knowledge through "models," as opposed to direct perception of reality. "There is a less familiar way in which a scientist can work out what is real when our five senses cannot detect it directly. This is through the use of a 'model' of what *might* be going on, which can then be tested" (16). Using the "gene" as an example of this process, Dawkins describes the invention of Gregor Mendel, an Augustinian friar, as follows:

Leaving aside the details, the point is that Mendel's 'genes' were an invention of his imagination: he couldn't see them with his eyes, not even with a microscope. But he could see smooth and wrinkled peas, and by counting them he found indirect evidence that his *model* of heredity was a good representation of something in the real world (17).

This is a helpful discussion of precisely what modern science is up to when it purports to describe reality. Every student learns about genes, molecules, atoms, electrons, and a host of other scientific objects, but Dawkins reminds us that they are not "reality," but merely models that approximate or "represent" reality based on experimental verification. Here we have the makings of a more humble approach to modern scientific knowledge of the world: at its most powerful and abstract it always involves *modeling* reality, not seeing it directly.

Dawkins treatment of natural selection in the same chapter is also excellent. Natural selection is a frequently misunderstood scientific concept. Dawkins illustrates the mechanism of selection using a pond full of frogs. Selection is first made by means of a rational agent: a human picks the frogs with the longest legs and pulls them out to breed together. This trait (long legs) gets passed on to the next generation, which is in turn selected from for longest legs and breed. The process results in frogs with longer legs (on average) than would happen if there were "random" breeding among all the frogs.

The next step is to remove rational agency and show that natural selection can produce the same result: instead of a human choosing long-legged frogs, snakes will attack the frogs. Frogs with the longest legs will have a survival advantage over those with short ones. This will leave the survivors to breed, producing longerlegged frogs as the snake-attack process repeats itself. Through this simple example Dawkins shows how natural selection occurs in a population.

Chapter Two aims to answer the question: "Who was the first person?" After giving some mythical accounts of creation, he uses evolutionary history to explain the common ancestry of all living things. "This may surprise you, but there never was a first person – because every person had to have parents, and those parents had to be people too!" Using this example Dawkins takes us on a whirlwind tour of the last 185 million years to find our "185-million-greats-grandfather" — a very interesting looking fish! The principle of gradual change is a tough concept to get (how could anything complex come from a fish?), but Dawkins shows how countless small changes could lead to radically different organisms.

Chapter Nine, "Are We Alone?", explains our place in the universe and dispels common "alien" myths. The most interesting part of the chapter, though, is his section applying evolutionary ideas to imagine what animals might look like on other planets. Dawkins says:

There is much that remains deeply mysterious, and it is not likely that we will ever uncover all the secrets of a universe as vast as ours: but, armed with science, we can at least ask sensible, meaningful questions about it and recognize credible answers when we find them. We don't have to invent wildly implausible stories: we have the joy and excitement of real scientific investigation and discovery to keep our imaginations in line. And in the end, that is more exciting than fantasy (202).

Finally, and possibly most controversially, Dawkins gives the reader a first glimpse of evolutionary psychology in the eleventh



HIERONYMUS BOSCH - TRIPTYCH OF THE GARDEN OF EARTHLY Delights (detail)

chapter, "Why Do Bad Things Happen?". Evolutionary psychology is a relatively recent sub-field in evolutionary biology and its main point is straightforward, even if odd-sounding at first. It maintains that since natural selection works on all organic levels, it is only reasonable that the human mind has also been shaped by the powers of selection. Since the brain is a physical organ in addition to being the locus of thought, it, like all other organs, must have been shaped by the pressures of selection.

If this is confusing at first, perhaps an analogy would help. Newton's Theory of Gravitation made sense to many people and is based on the attraction between massive objects. But initially light was excluded from gravitation because light particles (photons) do not possess mass. One might think that we have a similar situation with selection: all living organisms can be affected, but the mind is something different (and indeed it is) and so is immune to selection forces. But of course, Newton's Theory of Gravitation was not the final word on the subject, and Einstein showed through his Gravitational Theory (General Relativity) that light *was* indeed affected by gravity; Newton's theory was only a simple approximation of the more complete theory. In the same way, while selection in human psychology does not follow the same exact pattern as selection among living organisms, the Theory of Selection can be used to account for the mind's development and patterns.

Dawkins gives a simple example of this in comparing Sod's Law ("Murphy's Law" to Americans) and Pollyanna's Law. Sod's Law says: "If a thing can go wrong, it will." Pollyanna's Law is the opposite: "If a thing can go well, it will." Sod's Law is the motto of pessimists, Pollyanna's Law, the refrain of optimists. Now, no one really likes a pessimist, so why are there so many around? One explanation is that pessimists, at least in natural history, are better at surviving:

Our ancestors spent much of their time in mortal danger from lions and crocodiles, pythons and sabretooths. So it probably made sense for each person to take a suspicious some might even say paranoid—view of the world, to see a likely threat in every rustle of the grass, every snap of a twig, and to assume that something was out to get him...Sod's Law may or may not be true, but behaving as if it is true is safer than behaving *as if* Pollyanna's Law is true (240).

Now whether this exact explanation (or any explanation for that matter) is correct about the presence of pessimists among us is not the fundamental point; rather, it is that natural selection may, at times, provide insight into how we think and act and may produce answers to otherwise inexplicable behaviors.

The book contains other examples of the wonders of modern science and the rational creatures who have achieved its success, but these five should suffice to highlight the interesting material, which may get looked over because of the exaggerated, and (dare I say it?) unscientific assumptions found throughout Dawkins' book.

Assumptions Explicit and Implicit – A Critique

As mentioned earlier there are two fatal flaws to this book, as well as any modern scientific presentation from the likes of Dawkins, Dennett, Harris, and the late Christopher Hitchens: First, the fallacy of a "modern science only" perspective on reality; second, the conflation of ancient myths and fairy tales with Christian narratives and historical accounts.

In the opening chapter, Dawkins lays out his charge against "non-scientific explanations:"

Now I want to return to the idea of the supernatural and explain why it can never offer us a true explanation of the things we see in the world and universe around us. Indeed, to claim a supernatural explanation of something is not to explain it at all and, even worse, to rule out any possibility of its ever being explained... Anything 'supernatural' must by definition be beyond the reach of a natural explanation. It must be beyond the reach of science and the well-established, tried and tested scientific method that has been responsible for the huge advances in knowledge we have enjoyed over the last 400 years or so. To say that something happened supernaturally is not just to say 'We don't understand it' but to say 'We will never understand it, so don't even try' (23).

This claim is rife with problems. First, all those who developed this "tried and tested scientific method" were in fact sincere and devout Christians. Sir Francis Bacon and René Descartes wrote as much on theology and religion as on "scientific" issues. Deluded? Schizophrenic? I think not. It has been argued before that the whole modern scientific project only got off the ground because of the belief in an ultimately rational God who made everything. Dawkins' way of thinking assumes that there is only one element in reality—the material. Thus Dawkins' view should really be called "modern scientific monism." Like any other monistic system, while attractive in its simplicity, it fails to fully articulate reality. Consciousness is surely the most important example here, as Archbishop Rowan Williams recently pointed out to Dawkins in a debate at Oxford University.

Gottfried Leibniz offered a similar objection to materialism: if everything is material, then I should be able to build a robot "brain" that is conscious. Suppose I do this, and then make all the requisite parts very large, but in the same proportions as in the original brain (think of enlarging an image to see it better). If I walked around and looked at all the mechanisms and material interactions going on when this brain is "thinking," how could that possibly explain my conscious experience? Obviously the brain has a lot to do with consciousness (brain damage and evolutionary psychology have shown this) but to think that this explains what appears to be a qualitatively different issue is tantamount to explaining the meaning of a movie by discussing the properties of light in flat-screen televisions.

St. Thomas also answers this monist or "modern science only" charge in an objection to the existence of God (ST I.q.2 art.3). The objector says, "Further, it is superfluous to suppose that what can be accounted for by a few principles has been produced by many. But it seems that everything we see in the world can be accounted for by other principles, supposing God did not exist. For all natural things can be reduced to one principle, which is nature."

St. Thomas deftly answers by distinguishing levels in the principles of explanation: "Since nature works for a determinate end under the direction of a higher agent, whatever is done by nature must needs be traced back to God, as to its first cause." St. Thomas is happy to agree that natural things are explained by natural principles and causes, but recognizes that they are not the *only* causes; reality is more than blind mechanical laws—it also has order and direction. Even modern science recognizes different

causes in reality in notions of "emergence" and higher levels of organization. So we have a false and naïve dichotomy in Dawkins; it isn't either/or but *both/and*—material causes *and* immaterial causes.

The second major problem with Dawkins' book is the conflation of ancient fairy tales and myths with Christian accounts of reality. Now, to be sure there are *some* Biblical accounts that are *closer* to the myth category than to the historical category. The Tower of Babel episode in Genesis 11 comes to mind as an example. This of course doesn't mean we should stop reading or thinking about this story. Perhaps people listening to the story thought it was constructed as a parable (like the Good Samaritan parable) to teach a very important lesson about arrogance and pride.

The presence of mythical stories in Christianity seems to be a fact. That *all* Christian stories and accounts are on this level would be an absurd conclusion, which Dawkins is all too ready to reach. At one point he says, "As it happens, we know that lots of fiction has been made up about this particular preacher called Jesus." He shows this by citing the "Cherry Tree Carol," in which Jesus speaks to a cherry tree while in the womb of Mary. This is then equated with Jesus' miracle of turning water into wine at the wedding at Cana.

What is missing in his facile analysis is the difference between myth and miracle. For Dawkins, these appear to be the same thing: a story made up by humans about something that never happened. So, the "Cherry Tree Carol" and the wedding at Cana are accounted the same. In fact, Dawkins even presumes to state that the miracle of the sun at Fatima is on the same level. Now while none of these three examples is something we would examine using "modern science," that does not mean they are three examples of the same type of thing. One is clearly a made-up fable (the Cherry Tree Carol), one is a non-fictional account (the wedding at Cana), and one is a piece of modern history (the miracle of the sun). Dawkins' categorizations are too simplistic.

Not only are the Christian stories and accounts on a different level than pagan myths and fables, but also there are different levels of story and history within the Christian accounts. One can very reasonably be counted a Christian without believing in a *physical* Tower of Babel; whether the same is true if one does not believe in a *physical* resurrection of Jesus Christ is quite another matter. Dawkins' over-simplification of stories, and his implicit assumption that Christian accounts are no different from pagan mythologies, proves untenable on further reflection. Additionally, it undermines his own efforts to foster the "scientific" approach to reality in youngsters. The myth of Thor simply did not have the profound effect on western civilization as the story of Jesus' resurrection did and does. Why this is the case is a great question something Dawkins should consider.

Concluding Reflections – The Denial of Purpose and the Death of Man

As a final word on this book and its view of reality, I offer Dawkins' thoughts on purpose:

People sometimes say, 'Everything happens for a reason.' In one sense this is true. Everything *does* happen for a reason which is to say that events have causes, and the cause always comes before the event... But people sometimes use 'reason' in a very different sense: to mean something like purpose... It is amazing how often people resort to this kind of nonsense (234).

Speaking of *purpose* is, according to Dawkins, "a hangover from childhood." From his "modern science only" perspective there can only be questions of "How?"—not "Why?" For him asking "Why are we here?" is equivalent to asking, "What sound does blue make?" The universe is ruled by chance and blind mechanical law; there is no room for purpose or providence, as they are immeasurable.

Obviously this is unacceptable for a Christian who knows that Christ is the *Logos*, which means Word as well as Reason. During his visit to Berlin last fall, Pope Benedict XVI responded to a similar claim of the utter futility in asking questions about purpose and reason in science: "Is it really? — I find myself asking. Is it really pointless to wonder whether the objective reason that manifests itself in nature does not presuppose a creative reason, a *Creator Spiritus*?" Christians cannot remove the higher questions of purpose and divine reason from reality in the way Dawkins would like; what's more, this line of questioning is not only a Christian one—it is a human one. Who has not looked up at the stars and pondered the meaning of life? Is that question *really* equivalent to asking what the color red tastes like?

Aristotle famously opened his *Metaphysics* by saying, "All men by nature desire to know." The desire to know is what drives all scientific endeavors and achievement. Dawkins' book is, to be sure, a product of this desire; yet, when the desire to know is so strangled and restricted by his limited perspective, we not only lose God and purpose; we can lose our humanity. French philosopher Michel Foucault, Nietzsche's greatest disciple, saw this all too clearly: "Rather than the death of God—or, rather, in the wake of that death and in a profound correlation with it—what Nietzsche's thought heralds is the end of his murderer."

Dawkins' denials, of purpose, of non-scientific reality, of mystery and miracle, of God, will not, as he hopes, bring about a brave new world for the youth of today. Instead, it will usher in a return to the primordial sea of our ancient past. For if we give up these truths, then, as Foucault says, "one can certainly wager that man would be erased, like a face drawn in the sand at the edge of the sea." Dawkins' science does provide some insight into the "magic of reality," but sometimes magic isn't enough.

Bonaventure Chapman, O.P.

Bonaventure Chapman entered the Order of Preachers in 2010.