

Highly evolved questions: What scientists and theologians talk about

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Outside of Boston Public Library sits the statue "Science," directly opposite Trinity Church in Copley Square. [Some rights reserved](#) by [3eyedmonsta](#)

One story told widely by the New Atheists is that science deals with hard empirical facts on which rational choices can be based, while theology perpetuates superstitions, illusions and wishful thinking. Perhaps by way of reaction, other people insist that although science and theology have very different methods, they share a common commitment to building a body of knowledge through patient investigation that eventually gives access to reality (if somewhat different versions of it).

Both of these stories about science and theology understate the complexities that face any actual conversation between scientists and theologians—especially about what they are doing. We may indeed share a common commitment to truth, but we have such vastly different methods and starting points that it is hard to speak of a philosophy that we all share. We can learn important things from each other, but we are sometimes puzzled by how our colleagues work and how they know what they seem to know.

It's too simple to suggest that there is one method for science and another for theology. Scientists themselves operate with vastly different methodologies. Some

explore the paleoanthropological record, seeking clues to prehistoric life; others analyze particular practices among living communities; others identify cognitive mechanisms underlying religious beliefs as they surface in laboratory experiments; others generate theoretical models of human cooperation using mathematical analysis and equations.

It is this variety of scientific methods that in practice—given the right cultural and intellectual context—makes scientific investigations open to new directions. Historians of science have studied for a long time how these new directions develop.

Theologians, who have their own ways of analyzing beliefs, have added some interesting texture to these explorations. For example, scientists are often challenged by theologians about their core assumptions, such as about the meaning of evolutionary success or about free will. Theological perspectives can also open up novel questions that scientists might rarely ask themselves but which are in some cases perfectly amenable to the usual tools of science.

We note at least three broad domains in which theology can generate constructive material for scientific endeavor.

First, scientists can look at the diversity of ideas within theological traditions and observe that each one may lead to different predictions about human nature and humans' relationship to nature and society. These ideas can then be tested against emerging scientific knowledge about human biology. We can examine which particular theological ideas chime or chafe with a modern understanding of human evolution.

Second, theology may dispel many misconceptions and stereotypes about religion, revealing bigger—and philosophical—questions about the nature of the universe and our understanding of life. These questions often go beyond current evolutionary theory.

Third, theology poses significant questions about meaning, purpose and motivation—not just in evolutionary approaches but also in the work of scientists themselves. How do underlying philosophical stances, whether conscious or not, influence what and how science is done?

This question might be seen as antiscientific, but it is not. To take a concrete case: Darwin's theory, its emergence and its acceptance were all powerfully influenced by

the Christian society from which it grew.

So the diversity of scientific methods leaves openings for questions *from* theologians, even if not for questions of theology.

But we have also found there are limits to this process, largely because the method through which theology develops is very different from the methods of scientists. The only way in which the two approaches could be the same would be if theology were thought of as a science. While that stance is theoretically possible, approaching theology as a science would mean changing what scientists mean by the practice of science and the use of evidence. Until these methodological distinctions are recognized, it is hard to make progress in the conversation.

Theology is comfortable looking back into its history, because all theology is bound up with interpretation. Or to use a more sophisticated term: it is all about hermeneutics. Science, including evolutionary science, while it is certainly historical, is concerned with what history might reveal in terms of data on evolutionary processes—the diversification and adaptations of organisms, including humans.

The history of science itself is the story of scientists and ideas, in which unsuccessful ideas are replaced with better ones, in a kind of ratchet of constant improvement, with a few slips backward. Evidence and theories compete and advance, and the ones that prove to make good predictions stick around (itself a somewhat Darwinian process).

A post-Enlightenment philosophy informs science. It is concerned with making progress in discovering particular elements about the world that are either unknown, contested or not sufficiently appreciated. This is the excitement and the energy of science: the “new” lies just beyond the horizon of what we now know, waiting to be attained.

Of course, inasmuch as evolutionary science is historical there is room for more difference in interpretation than might seem obvious from outside the field. Two scientists can spend their lives looking at the same evidence and maintain diametrically opposing views of what hypotheses it supports. Such cases may be occasional islands in the sea of an emerging consensus, but they nevertheless illustrate the point that scientific endeavor does not always lead to a single conclusion.

Here are a couple of examples of such divergence: One of the most obvious characteristics of *Homo sapiens* is our extensive cooperation with one another. We coordinate and cooperate all the time, even in one-shot encounters with strangers. The data consistently show that this happens, but scientists are divided over *why* it happens.

One group of behavioral economists and cultural evolutionists are convinced that these “pro-social” tendencies are part of human nature resulting from an evolutionary history that favors humans who display altruism. Another group of evolutionary biologists and psychologists are equally convinced that the observed pro-sociality is simply the result of mechanisms of self-interest and reputation management “misfiring” in our modern, evolutionarily novel environment.

Another scientific debate involves the huge question of how natural selection worked in human evolution. One camp argues that selection has acted most strongly at the level of individuals, and human nature is thus the result of selection for organisms that pursue their self-interest. Another camp argues that selection acted most strongly at the level of groups, and human nature is the result of selection for groups of individuals that aided each other, even at the expense of the individual.

These are hardly trivial details. These are cases of scientists disagreeing about the mechanisms of evolution, with major implications for human nature. Some scientists have even taken on the role of mediator, trying to get the two sides to see that their views are in large part a matter of conflicting interpretations, not conflicting evidence.

Heated debates among theologians, by contrast, have to do with how much the tradition might bend or develop in relation to concerns of contemporary society, rather than in relation to what is inevitably the case. Of course, theologians can also challenge scientists by noting that the kinds of questions scientists are likely to ask are influenced by the cultural milieu in which science is practiced. (A scientist might counter that this only changes the *path* to understanding or truth, not the landscape of reality itself. The results of the experiments themselves, unless they are fabricated, stand up to repeated scrutiny.)

All that theology has to rest on here is the strength of its arguments, using tools borrowed from philosophy, the tradition and key scriptural sources, alongside experience. Scientists may use experience, but it is the experience of a participant

observer who will attempt at least to maintain a distance from the particular cultural or other biases that such participation entails.

An individual scientist or individual study may fail to achieve objectivity in setting hypotheses, determining methodology, choosing measures and interpreting the data. But with hundreds of scientists chipping away at the same topic, as long as biases are random, then any given field will eventually converge on consistent truths about how the world and humans work. Ideas and data that do not match what others find are gradually discarded.

This same process may even help us understand why it sometimes takes so long for research to converge: ironically, scientists have discovered many biases in human cognition that reliably and systematically distort our preferences, judgments and decisions. Naturally, these biases affect scientists as well as anyone else and push them off course, despite honest efforts.

Many scientists now recognize that religion is instrumental in human evolution. Irrespective of whether the truth claims of any given religion are valid or not, religious beliefs and behaviors can affect Darwinian fitness. Natural selection is therefore unlikely to have been impartial about religion in the evolution of human beings.

Theology should also not be seen as completely new territory for scientific exploration. There are other types of nonmaterial beliefs (for want of a better term) that have been studied scientifically before, from the motivational biases identified by psychologists such as Martin Seligman to the cognitive biases examined by economists such as Daniel Kahneman. The question is how theology differs from other ways of thinking by which human beings perceive the world.

From the above discussion, it would be easy to conclude that the issues that divide science and theology really concern the broader questions of dialogue between the sciences and the humanities more generally. What particular issues does theology bring to the mix that are unique?

Our suggestion is that theology has some commonality with other subjects in the humanities, but it also has distinguishing characteristics. It brings together diverse disciplines as conversation partners in order to create a text. For example, it may draw on philosophy, history, anthropology, social science or even evolutionary science. It does so in order to try to understand the world in which human beings are

situated and their context.

But theology also goes further. By taking a particular tradition within religious belief, it tries to make that tradition salient in the contemporary context, adjusting to a greater or lesser extent insights about the human condition handed down through the centuries. Theology's insights therefore represent the collective wisdom of minds that have sought to struggle together and learn, often in the face of repeated opposition and challenge.

Belief in God is a unique aspect of the human species, and meta-reflection on that belief and the practices that accompany it is the task of the theologian. Inasmuch as human beings are a symbolic species who create myths that cry out for interpretation, theology is a further abstraction on those myths. So the story of Adam and Eve is a powerful myth about the creation of the first humans, and the doctrine of original sin is a meta-reflection on the significance of that myth.

When theologians approach science, they seek to recognize the potency of its practice in everyday lives, but also to challenge its trajectory of dominance. This is particularly true in the case of evolutionary biology, since it is becoming paradigmatic in virtually every field, from psychology to economics to politics.

Scientists, on the other hand, view the attempt by theologians to resist this master narrative as being at best enfeebled by cultural specificity. Of course, inasmuch as Western science is predicated on Christian metaphysical principles, scientists have to learn to accept their heritage in that tradition. Indeed, some scientific evidence from psychology supports this view. The way we think, let alone the way we do science, is heavily influenced by culture and the deep cultural traditions that shape our personal goals and the society in which we pursue them.

This may account for fundamental differences in the way science is construed in the Western and Eastern worlds. The tensions can be navigated only by accepting a measure of difference. If theology becomes more like a form of poetry, of poesis, then once again theology and science will glide on different planes and so prove less threatening to each other.

But most theologians seek to offer something more than poetry; they aim to bring meaning into human lives, particularly the lives of those who self-identify with religious communities. Theology, then, is a meaning system that acknowledges that meaning is itself the message, while it tries to take seriously what scientists are

claiming, either in opposition or in affirmation.

More explicit engagement with evolutionary science clarifies these points further. Evolutionary science can help to demystify myths that have prevailed in contemporary society and impinged on human sciences and on theology. One of these myths is that of the human emerging from the ape in a linear manner—that humans “descended from monkeys.”

Two important errors in this line of thinking are relevant to this discussion: misperceptions of what evolutionary relatedness is and a lack of understanding of how species evolve. It is true that humans are primates (a particular group of mammals) and that our closest living relatives are the African apes. However, no species living today (such as chimpanzees) gave rise to humans. Humans share a common ancestor with the African apes—an ancestor that lived sometime between 7 and 10 million years ago—but many evolutionary changes have occurred on each of the different lineages that eventually became humans, gorillas and chimpanzees.

Evolutionary change and the emergence of new species happen much like the growth of a dense bush. From one or a few sturdy roots grows a diverse array of branches that are constantly dividing, growing and producing their own leaves and twigs. These branches are analogous to evolutionary lineages in that they share a common root but grow and develop in their own directions, related to, but separate from, the other branches. So being closely related in an evolutionary sense means that we share deep biological roots in common, but not that we “come” from one another. The broader implication is that all life shares, at some extremely deep point in the past, a shared root (and scientists are able to measure this in the great shared chemical of life: DNA).

At the same time, evolutionary knowledge about the baseline of similarities and common patterns helps to bring into sharper relief what is different about humans. Science is often chided for implying that humans are not much different from other animals, but in fact many scientific fields explicitly focus on aspects of human distinctiveness. These distinctive features are of major significance, because they can affect the way humans interface with natural selection.

Unique human characteristics (such as the ability to use complex language, make and use complex tools and think symbolically), along with the way humans have used these abilities to control and shape the social and physical environment, means

that humans have had a great hand in creating their own evolutionary history. A logical and tantalizing extension of this idea of “niche-construction” is the possibility that religion was not just a product of human evolution but actually may have had a hand in *shaping* human evolution. The theological implications of such a hypothesis lead us into intriguing new territory.

Why is this development particularly important for theology? It is important because historically the tradition has tended to exercise an extreme form of anthropocentrism by overemphasizing the human person as somehow “superior” to all other creatures. While some theologians now challenge this myth within the tradition itself, the resources of science back up such counterarguments. Theologians can join with scientists insofar as both are concerned with the negative impact that human beings have had on the planet. A religious view will reinforce behaviors in different ways, and dismantling religious views that have had impacts on the way humans treat the environment or other animals, for example, is an important step toward humanizing humanity.

We concede, therefore, that the human condition can be interpreted adequately only through transdisciplinary discourse—that is, discourse that seeks to find new and interesting insights while focused on a single problem. Whatever its difficulties, such investigation leads to a deeper understanding through an in-depth exchange between theology and the evolutionary sciences.

In the end, the dialogue between science and theology has implications that go beyond scientific and theological inquiries alone. Discussion across different methods and traditions contributes to a clearer picture of humans’ place in nature and history, and that is important for everyone who is trying to figure out how to live together in a global culture sustained by a single ecosystem. The practical answers to those questions about our future will not be exclusively scientific or exclusively religious; they will have to stand up to scrutiny from both of those perspectives.

Perhaps the fact that scientists and theologians can discuss these questions critically, even skeptically, but in ways that genuinely lead to new understandings will give us some insight into how evolved human capacities can master all the challenges to be addressed if humans are to have a sustainable future.

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