

# A Primer on Science, Religion, Evolution and Creationism

Human Origins Initiative, Broader Social Impacts Committee  
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## **Introduction: The Broader Social Impacts Committee**

**The David H. Koch Hall of Human Origins at the Smithsonian’s National Museum of Natural History (NMNH)** invites the public to explore the depths of our understanding of what it means to be human in relation to the most reliable scientific research. The answers to the question, “What Does It Mean To Be Human?” draw on a variety of sources: scientific understandings of the biological origins and development of *Homo sapiens*, studies of social and cultural evolution, and global and personal insights from contemporary experience. It is in recognition of these broad factors that public engagement materials, events, and contributions to the Human Origins web site are being developed by the Broader Social Impacts Committee (BSIC) to support the exhibit in the David H. Koch Hall of Human Origins.

Organized by the Museum’s Human Origins Initiative, the BSIC is a group of scholars and practitioners from a wide range of religious and philosophical perspectives, many of whom also have experience in the academic field of science and religion. This committee helps inform the Smithsonian about the range of cultural perspectives the public brings to the exhibit, considers ways the museum can encourage the public’s engagement with the science the exhibit presents, and helps equip museum staff and volunteers to participate in a respectful conversation where science intersects with cultural and religious interests. The committee recognizes the unique opportunity the subject of human origins offers for the exploration of challenging cultural topics, which in turn can inspire greater public interest in, and understanding of, science.

Thus, it is with input from the committee that the co-chairs have prepared this primer. It provides a brief introduction to issues that arise at the crossroads of science and religion, particularly in relation to the scientific accounts of evolution and human origins that are presented in the exhibit. The primer is organized around two broad topics: science and religion and evolution and creationism. A question and answer format is used to highlight common concerns for each of these topics. Cultural divides in the United States over the acceptance of evolution and scientific understandings of human origins make this interchange relevant. They also offer an opportunity to inspire a positive relationship between science and religion.

## **Science and Religion**

Visitors to the David H. Koch Hall of Human Origins bring with them many assumptions about science, about religion, and about their relationship. These assumptions may impact, positively or negatively, their willingness and ability to engage the scientific presentation of human origins. The questions below are offered as a guide to begin thinking about science and religion in the context of the possible interactions of religious worldviews with a scientific account of human evolution and origins.

## **1. What is science?**

Science is a way to understand nature by developing explanations for the structures, processes and history of nature that can be tested by observations in laboratories or in the field. Sometimes such observations are direct, like measuring the chemical composition of a rock. Other times these observations are indirect, like determining the presence of an exoplanet through the wobble of its host star. An explanation of some aspect of nature that has been well supported by such observations is a theory. Well-substantiated theories are the foundations of human understanding of nature. The pursuit of such understanding is science.

## **2. What is religion?**

Religion, or more appropriately religions, are cultural phenomena comprised of social institutions, traditions of practice, literatures, sacred texts and stories, and sacred places that identify and convey an understanding of ultimate meaning. Religions are very diverse. While it is common for religions to identify the ultimate with a deity (like the western monotheisms – Judaism, Christianity, Islam) or deities, not all do. There are non-theistic religions, like Buddhism.

## **3. What is the difference between science and religion?**

Although science does not provide proofs, it does provide explanations. Science depends on deliberate, explicit and formal testing (in the natural world) of explanations for the way the world is, for the processes that led to its present state, and for its possible future. When scientists see that a proposed explanation has been well confirmed by repeated observations, it serves the scientific community as a reliable theory. A theory in science is the highest form of scientific explanation, not just a “mere opinion.” Strong theories, ones that have been well confirmed by evidence from nature, are an essential goal of science. Well-supported theories guide future efforts to solve other questions about the natural world.

Religions may draw upon scientific explanations of the world, in part, as a reliable way of knowing what the world is like, about which they seek to discern its ultimate meaning. However, “testing” of religious understandings of the world is incidental, implicit and informal in the course of the life of the religious community in the world. Religious understanding draws from both subjective insight and traditional authority. Therefore, some people view religion as based on nothing more than personal opinion or “blind faith,” and so, as immune to rational thought. However, this is an erroneous judgment. Virtually all of the historic religions include traditions of rational reflection.

## **4. How are science and religion similar?**

Science and religion both have historical traditions that exhibit development over time. Each has places for individual insight and communal discernment. Analytic and synthetic reasoning can be found exhibited in both. Science and religion have been and continue to be formative

elements shaping an increasingly global human society. Both science and religion have served to jeopardize and contribute to the common human good.

## 5. How can science and religion be related?

Typical assumptions about this relationship fall into one of three forms: conflict, separation or interaction.

A *conflict* approach assumes that science and religion are competitors for cultural authority. Either science sets the standard for truth to which religion must adhere or be dismissed or religion sets the standard to which science must conform. For example, some atheists adopt this approach and argue that science reduces religion to a merely natural phenomenon. Conversely, some religious adherents, while claiming to accept science will identify specific points at which mainstream scientific findings must be distorted or abandoned for the sake of religious convictions. Such an adversarial approach tends to rule out any constructive engagement between science and religion.

Individuals who prefer a *separation* approach hold that science and religion use different languages, ask different questions and have different objects of interest (e.g., nature for science and God for religion). By highlighting the differences between science and religion, conflict is avoided. While this approach allows a person to explore what science has learned about human origins without fear of conflict with religious beliefs, it also encourages that the science be left, so to speak, at the museum threshold so that it has no impact on other non-scientific explorations of what it means to be human. A consequence of separation is that the science of human origins can be viewed as irrelevant to what might be the deepest of human concerns.

It should be noted that it is true that science is practiced without reference to religion. God may be an ultimate explanation, but God is not a scientific explanation. This approach to science is called methodological naturalism. However, this method of isolating religious interests from scientific research is not an example of the separation approach. Historically, this bracketing out of religious questions in the practice of scientific inquiry was promoted by religious thinkers in the 18<sup>th</sup> and 19<sup>th</sup> centuries as the most fruitful way to discover penultimate rather than ultimate explanations of the structures and processes of nature.

A third possibility for the relationship between science and religion, one of *interaction*, at minimum holds that dialogue between science and religion can be valuable, more that science and religion can constructively benefit from engagement, and at maximum envisions a convergence of scientific and religious perspectives. Generally, this view encourages an effort to explore the significance of scientific understanding for religious understanding and vice versa. With this approach science remains relevant beyond the museum for many people who might otherwise ignore scientific findings.

## Evolution and Creationism

The National Museum of Natural History of the Smithsonian Institution has a responsibility due to its charter to provide the public with an opportunity to explore for themselves the most recent

scientific understandings of the natural world, including human origins. However the question, “What does it mean to be human?” is generally recognized as one that does not belong solely to the realm of science. People are well aware that insights from the humanities, including the arts, literature and religious traditions, have much to say on this topic as well. For some people an evolutionary account of human origins may be greeted with skepticism because it challenges their particular religious commitments. In contrast, other people find their religious perspectives are deepened and enriched by an evolutionary understanding of human origins. Although the questions below recognize this range of perspectives, many of the questions reflect expectations that are especially characteristic of people from those religious communities that are skeptical about the science of evolution. Ironically, people in these latter communities often value science and seek scientific support for their particular religious commitments.

### **1. Do “creationists” necessarily oppose an evolutionary understanding of the history of nature and the origins of species and humanity?**

No. In principle all members of the three western monotheisms (Judaism, Christianity and Islam) are “creationists” in that they believe the order of nature exists because a reality beyond nature, commonly called “God”, is the ultimate cause of all existence. In this sense of the word, many creationists accept an evolutionary understanding of natural history. However, at least four types of creationism can be identified, and each has a distinctive view of the evolutionary sciences and human origins.

*“Young-Earth” creationists* hold that the sacred text provides an inerrant account of how the universe, all life and humankind came into existence; namely, in six 24-hour days, some 6-10,000 years ago. Human beings were created through a direct act of divine intervention in the order of nature.

*“Old-Earth” creationists* hold that the sacred text is an infallible account of why the universe, all life and humankind came into existence, but accepts that the “days” of creation are metaphorical and could represent very long periods of time. While many aspects of nature may be the consequence of direct acts of divine creation, at very least they hold that the very beginning of the universe, the origin of life and the origin of humankind are the consequence of distinct acts of divine intervention in the order of nature.

*Theistic evolutionists* also hold that the sacred text provides an infallible account of why the universe, all life and humankind came into existence. However, they also hold that for the most part, the diversity of nature from stars to planets to living organisms, including the human body, is a consequence of the divine using processes of evolution to create indirectly. Still, for many who hold this position, the very beginning of the universe, the origin of life, and the origin of what is distinctive about humankind are the consequence of direct acts of divine intervention in the order of nature.

*Evolutionary theists* hold that the sacred text, while giving witness to the ultimate divine source of all of nature, in no way specifies the means of creation. Further, they hold that the witness of creation itself is that the divine creates only indirectly through evolutionary processes without any intervention in the order of nature.

## **2. What will be the exhibition’s message to the majority (in some polls 53%) of Americans who do not believe in evolution?**

The exhibition’s main message is the same for all visitors; namely, that the scientific study of human origins is an exciting and fruitful area of research that has provided us with a deeper understanding of both our connection to all of life on Earth and the uniqueness of our species, *Homo sapiens*. It is intended that those Americans who do not believe in evolution will experience in this exhibition an open invitation to engage the science presented, explore the supporting materials, and participate in conversation with staff and volunteers without fear of ridicule or antagonism. Though the viewpoints of those who do not accept the scientific explanation of human origins are not affirmed in the exhibition, the personal importance of their perspectives is appreciated. What the exhibition intends to create is an environment for an enriching and respectful dialogue on human origins that currently can be found in no other venue.

## **3. Scientific theories change in the light of new discoveries. Why should we believe what science has to say today about human origins when it may change tomorrow?**

The perception that scientists completely change their mind with each new discovery is mistaken. Although this has occurred occasionally in the history of science, it is relatively rare. Unfortunately, media coverage of advances in scientific research often sensationalize the “revolutionary” nature of new discoveries and are also likely to focus on the most controversial interpretations of new findings. What is frequently missed is the broad consensus among scientists in a field, like that of human origins research, that provides the basis for seeking new discoveries. For example, it is broadly agreed that the various characteristics that distinguish our species did not emerge all at once. Walking on two legs emerged before making stone tools, and both of these occurred well before the biggest increase in human brain size. All of these came before the origin of art and symbolic communication. Farming and the rise of civilizations occurred much later still. There is broad scientific agreement even in the light of the most recent fossil discoveries that these changes that define our species took place over a period of about 6 million years. Each visitor to the exhibition has the opportunity to explore both the latest findings of laboratory and field research as well as consider how the scientific community is using these to give a more complete account of human origins. Each visitor is also invited to consider how this account might inform their deepest religious understanding of what it means to be human.

## **4. What is Intelligent Design and does the exhibit address it?**

Advocates of Intelligent Design (ID) hold that there are features of the natural world for which there are no natural explanations and that these features can be shown analytically to be the result of a designing agent. Although ID advocates seldom specify who the designer is, the logic of their argument requires that the designer be beyond nature, or supernatural. However, advocates for ID have not been able to show that their claims are genuinely scientific. While the scientific community welcomes new theoretical proposals, these must lead to active research programs that deepen our understanding of nature and that can find confirmation in either laboratory or field observations. Thus far, ID advocates have been unable to do either.

As an institution of informal public education, the exhibit cannot advocate a religious position. As a matter of public record, a US Federal Court has ruled that ID is not science but instead is a religious viewpoint (Kitzmiller v. Dover Area School District, 2005). For all of these reasons it is inappropriate for ID to be included in a scientific presentation on human origins.

**5. Still, some people believe that there is a scientific debate about evolution, and that advocates of ID represent one side of this debate. They wonder, “Why isn’t the Smithsonian presenting that side?” They see it as an issue of fairness and expect that ID should be presented equally.**

As noted above, the scientific community does not recognize ID as a scientific position. Therefore, it is not one side of a scientific debate. At the same time, the exhibition does provide the visitor with genuine examples of how the evidence for human evolution is interpreted differently by different researchers, for example, in the construction of frameworks for understanding how prehistoric species are related to one another. Here different interpretations of the evolutionary data are presented. While there is lively debate about such alternatives and data is actively sought to discriminate between them, there is no scientific debate about the basic validity of the theory of evolution as the best scientific explanation for the expansion and diversification of life on Earth, including human life.

**6. Does the exhibition identify the gaps in the scientific understanding of the origin of humans, gaps that can suggest that God played a role?**

It is just such “gaps” in our understanding that fuel the scientific enterprise. It is the unresolved questions about nature that mark the fertile areas for new research, propelling the sciences forward -- including those related to human origin studies. Science, as a particular way of knowing, restricts itself to offering natural explanations for the natural world. When scientists find a gap in their understanding of nature, as scientists they cannot say, “Here is where God acts in some miraculous manner.” Instead, scientists seek to look deeper into nature to discover there the answers that fill the gaps.

It is worth noting that many religious persons take exception to a “God of the gaps” viewpoint, to the idea that the action of God in creation is limited to those areas where there are gaps in human understanding. Supporting materials being developed for the exhibition by the BSIC will help visitors discover resources from various religious traditions that explore religious views on the relation of God and nature.

**7. How do people incorporate evolution into their religious worldview?**

Religious traditions vary in their response to evolution. For example, Asian religious worldviews do not assume an all-powerful creator God and often see the world religiously as interconnected and dynamic. They tend, therefore, to engage scientific accounts of evolution with little difficulty. However, for Jewish, Christian and Islamic traditions, the affirmation of a creator God in relation to the world has a central place. As noted in the discussion of various forms of

“creationism” above, many individuals in these monotheistic traditions accept, generally, that God created the material world mostly by means of evolutionary processes. At the same time, some of these persons are committed to the view that there are a few specific acts of divine creative intervention: namely, at the very beginning of the universe, at the origin of life, and at the origin of humankind. However, as previously noted, others in the monotheistic traditions hold that God creates entirely by means of evolutionary processes without any intervention, even in the case of humans.

At least for theistic evolutionists and evolutionary theists the scientific exhibition on evolution and human origins stimulates the questions, “Where is God in the process?” and “What does it mean to be created in God’s image?” To the extent that such questions provoke a constructive engagement of scientific and religious ideas, they are an expression of an interaction approach to science and religion. There are many though, who adopt a separation approach to science and religion. For these individuals there is no need to raise religious questions in light of the science of human origins.