



RELIGION AND SCIENCE:

Two Peas in a Pod or Fruits of Different Vines?¹

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This essay deals with the difference between religion and science. Émile Durkheim and other nineteenth century social philosophers thought that science was a child of religion and that the two belonged to the same family of collective representations. I would like to offer an opposing opinion from the point of view of cultural anthropology. The more you look at religion and science, the more it appears that science is different from religion. Science is something new, but religion is as old as the hills. Religion is built into the human brain, but science is not. Yet, scientific ideas without question can be called beliefs when they are acquired from others. Like religion, science offers a model of reality developed by a cultural group. When scientific ideas are acquired by imitation from the group, they seem to be similar to religious beliefs. However, there is a big difference in the way that the ideas are constructed before they are shared by the group. Cultures can produce various systems of knowledge each with their different ideas of what is true. This essay elaborates the position stated by Stephen J. Gould (1997): religion and science are different systems of knowledge.

¹ An earlier version was presented at the Department of Sociology and Anthropology Brown-Bag Series, Oakland University, on March 30, 2006

Often regarded as the founder of sociology, Émile Durkheim (1912) promoted the idea that religion and science were similar. His ideas affected the social scientific study of religion throughout the twentieth century. In Durkheim's thought, religion and science were closely linked. Religion evolved first, and then science split off from it (Durkheim, 1912, pg. 101). According to Durkheim, religion created the spirit of science, a logical, rational classification of the world. Now religion is gradually fading away and being replaced by science. For Durkheim, science and religion did not clash, because they were actually the same thing. He thought that it would take a long time for science to replace religion. Although science did a better job at describing many things, religion had lasting power because it directed social action, whereas science got lost in philosophical issues. Religion created action; science, on the other hand, simply created ideas.

Durkheim searched for the "origins" of religion. He defined origins in a non-temporal fashion as the "ever-present causes upon which the most essential forms of religious thought and practice depend" (Durkheim, 1961, pg. 20–21). He felt that "origins" were more clearly revealed in the "lower" cultures that had not been "complicated" by contact with the civilized ones. Thus, he incorporated a nineteenth century notion of progress into his theory and made it independent of actual evolution. Science was a type of cultural advancement that transcended its progenitor, religion. Furthermore, he felt that religion originated in the dynamics of social contact. He made "society" into a force. One could not see it, but that did not mean that it lacked effect. Other scientists could not see magnetic fields, but that did not mean that magnetic fields did not make things happen. Yet, his concept of society (Durkheim, 1938) was not derived from the other sciences. It ignored biology, biological evolution, animal behaviorism, and all the other natural sciences.

Belief and Knowledge

To understand the difference between religion and science, we first have to understand the difference between belief and knowledge. When does a proclaimed truth become knowledge? Plato (1999) discussed this long ago in his *Theaetetus*. He pointed out that knowledge is not simply truth, it is proven truth. A truth becomes knowledge when it is proven. Science proves its knowledge by empirical observation and experiment, a type of experience. It requires people to leave the world of ideas and have experiences independent of those ideas. If the knowledge reveals itself to be true in these experiments, then it is accepted by science. If it reveals itself to be false, it is rejected.

Religious belief also has some proofs of a different kind, the wonderment of nature, the sense of salvation from sin, etc. Religion creates religious knowledge by experiencing the workings of the emotions, an internal reality, that tell one that a religious truth has been spoken. Religious belief is created by persons who inspire us to the point that we accept their message as truth. The proof of religious knowledge is through inspiration. Religious truths also have a practical value for daily living. Not only must they be inspirational, but they must help us to live better lives. So religious belief becomes religious knowledge when it is proven in one of these ways.

Science has explicit rules for proving its knowledge. The proof is always available to others because it is explicit. Religious proofs are not so explicit. They can be personal, implicit, and not available to anyone. They can be challenged because they are subjective and often require a type of personal inspiration that is not available to everyone. Therefore they are suspect, and most people are more comfortable calling religious truths beliefs, unproven propositions, rather than knowledge. Finding truth in religion is far more complex than in science. We cannot see into its verification well. Religious truths are often proven by an irrational unconscious mental process.

They are far more in touch with the hidden unconscious than science. They draw on mental processes lying well beyond reason.

Sometimes, religious groups may specify rules for proving their knowledge, but the door is always left open for inspiration. Successful religions contain escape clauses, myths of transformation, that allow entirely new religious truths to appear. The Jews seek a new Messiah, the Christians seek manifestations of the Holy Spirit, and the Muslims await the coming of the Mahdi. These escape clauses allow new prophets to proclaim new truths and change religion.

The anthropologist Anthony Wallace (1956) studied the appearance of new religious truths and developed a formal scheme to describe the process, which he called cultural revitalization. The revitalization process begins with a prophet who has a vision of a new beginning. He or she calls on people to see the world, natural and social, in a new way. The prophet communicates his or her vision. A new movement may be founded. It can be religious or non-religious; however, most are religious, and all tend to become more religious as they intensify. A revitalization movement usually does not grow to the point where everyone joins the movement and it totally transforms the culture. Most revitalization movements affect only a small group. When a revitalization movement lasts for a long time, its ideas may become routinized and it may suffer a loss intensity. Many large modern religions such as Christianity, Islam, and Buddhism grew out of successful revitalization movements.

Once new religious truths are created, they pass from generation to generation through dialog. The religious dialog takes place between an elder and a novice. The truth of what is being said is determined (1) by the authority or charisma of the elder and (2) by the personal validation of the novice. The novice relates the teaching of the elder to his or her own experiences. Because it is generated by a dialog between an elder and novice, religious knowledge is often personal, but it can be widely shared. On the other hand, scientific dialog takes place

within a group of people. No one person in the group has a particular claim to absolute authority. Scientific knowledge is cultural, available to everyone, although it may not be widely shared.

Modern science depends on technology. It requires instruments to objectively measure phenomena. It needs external memory beyond the unaided memory of humans. The storing and circulation of scientific ideas allows their constant testing by persons other than those who originated them. It could not exist without written and graphical creations. This makes scientific truths open and vulnerable to refutation. Scientific truths cannot become sacred no matter how well established they are, because the sacred is beyond refutation.

Science is objective because it is valid for everyone who tests it. It refers to a reality that is the same for every person. Some people think that scientific knowledge refers to an “external” reality that is “out-there” in some way. However, it is constructed by humans and would not exist without them. It is not out-there. It is in culture. It is supremely cultural. It is open to everyone and belongs to no one. Some groups have created more science than other groups, but science can still be shared in spite of individual and cultural differences. Because it is extremely cultural (but not culture-specific), scientific knowledge tends to lose its attachment to particular groups and become part of a universal culture. Humans have been building universal culture since they first acquired the capacity to create culture, but only recently has it been possible to build it on a large scale.

In spite of its universality, scientific knowledge is not available to everyone. It is very technical and complicated. It usually requires education to understand. Scientific truths are vast, and no one person could know them all. Thus, science is universal knowledge that is not universally known. It is universal knowledge in the sense that it is true for everyone. It is not universally known in the sense that it is not equally available to everyone. It requires a technological and

educational infrastructures to spread. Furthermore, power-holding elites may control access to scientific knowledge much like ecclesiastical elites control access to religious knowledge. Much confusion has been created in the social sciences by a failure to understand this difference between “universal knowledge” and “universally known knowledge.” This may sound silly, but it is very important. It is often said that because science is generated within one culture and part of that culture, its claim to be universal or objective is false. This is not true. It can be both.

Scientific knowledge is so universal and objective that it does not attach well to groups. This is in line with its moral objective to provide reliable enlightenment to anyone. Unlike religion, it does not fit well into schemes for controlling social behavior unless it is used secretly. Applied science can move in the direction of secrecy, but pure science resists group attachment. This is both an advantage and a liability. Movements to promote science in public affairs move sluggishly and peter out in comparison to philosophical fads that fuel moral crusades. Who cares if you just have discovered a new scientific truth. There are a million other quasi religious truths that are far more exciting. If you draw from those, you get an additional prize, an enthusiastic audience.

Religious knowledge is spread more easily than scientific knowledge. It relies on fundamental narratives, myths. Its myths are interesting stories containing basic information about the world and moral precepts to guide proper behavior. Most people think of religion as more cultural than science, because it is associated with particular cultural groups. The traditional way of thinking about culture is to think of it as belonging to, and often defining a group of people. Religion identifies groups in a way that science does not. The scientific perspective tends to lose its group attachment as it builds universal knowledge. However, religion goes in another direction and builds knowledge that is true only for a group of people. It requires people to commit themselves to the beliefs of a

group. The commitment may seem small and easy to make, but it has wide social consequences.

Religion and science actually conflict only when they co-exist in the same cultural system. Michael Ruse (1997, pg. vii-ix) points out four positions that have been taken on the relationship between religion and science in Western cultures:

1. Religion and science are opposed. There is a warfare of ideas between the two. Both make contradictory claims about reality.
2. Science and religion are separate. There is no clash between the two because they deal with entirely different areas of experience.
3. There is a dialog between science and religion over different issues. There can be overlap and interaction.
4. Science and religion can be integrated. They are kept apart artificially. This was the position advocated by Teilhard de Chardin (1959).

The first position, that religion and science are at war, is the one that interests most people. It is more sensational. It is particularly important in the United States where large sections of Christian Fundamentalists are at war with the scientifically proven theory of evolution.

The Moral Issues

Religion and science are distinguished by the type of questions they answer. Religion answers questions about right and wrong. Science does not. Religious knowledge contains a moral system, whereas, science does not. Religion supports a social order. It promulgates rules for behavior. It performs practical social functions. In order to do this, it almost always develops its own particular concept of human nature. In some cases, it may have ceded its right to answer the “What is?” question to science; but it still is very much in the business of answering the “What is right?” question.

So, both religion and science answer questions about human beings. Science searches for knowledge about human beings in a certain way. First it wants to know what human beings actually do and think. Then it might consider the moral implications of this. Religion moves in the opposite direction. First it wants to understand what is right. Then it considers what human beings should do. Religion is much more embedded in the social system and is a necessary part of its orderly functioning.

The practical nature of religion forces it to work with everyday concepts. It needs to offer its morality to as many people as possible, and most people are not scientists. The complex intellectual structures of logic and fact that are part of science are not available to the vast majority of persons. To operate as a moral system guiding behavior, religion must transmit its view of the world simply and directly.

Religion has a difficult time incorporating scientific knowledge into its framework. It can be done in the ways that Michael Ruse pointed out. Religion does not have to fight with science. It can back up, take the moral high ground, concern itself with divine will, and let science work on the messy empirical problems. But, can science incorporate religion? Can science develop testable hypotheses about religion? Can religion be understood scientifically as human behavior? There are some efforts moving in that direction. There is a Society for the Scientific Study of Religion. Most of its members are sociologists, and they often work within a Durkheimian framework. They collect empirical data on what people believe and what religious organizations do.

On the other hand, anthropologists and psychologists are more likely to integrate their study of religion with the other sciences. The treatment of religion as a biologically evolved human trait is a new approach in psychology and anthropology. The primary question here is how could religion have evolved as adaptive behavior for the human species especially when it is so irrational? A religion that regulates the behavior of individuals in a group will likely develop an adap-

tation that increases the fitness of members of the group. Many studies have shown that religious people live longer happier lives than non-religious people (Hummer et al., 1999; Levin, 1994). These benefits are an indication of biological adaptation.

The Defense of Faith

Leaving aside the question of how much religious behavior is determined by human nature and how much by culture, let us consider the part of it that has been set up by biological evolution. A religious system confers survival and reproductive benefits on members of a group through its impact on social behavior. In order to maintain these benefits, whatever the system may be, the group image of religious reality must be maintained. Both religion and science make use of rational argument to maintain their images. The philosophical clash between religion and science occurs primarily on this battlefield of rational argument. A person can be a dedicated scientist and still feel emotion in religious ritual. It is only when the two systems of rational thought are focused on the same object that a conflict appears. If science refutes a religious “fact” upon which the adherents have built a rational argument for moral action, then the adherents will often defend their belief in spite of its scientific falsehood. This can still be seen as rational behavior in the sense of evolutionary adaptation, because their ancestors reaped benefits by following a moral system promoted by religious belief, but it is not rational within the realm of scientific knowledge.

Religions are found everywhere, and each group has its peculiar moral code. Religious behavior may be biologically programmed, but the moral rules, such as food taboos, are peculiar to each group. Is there a single morality in religion that appears in different forms as it is symbolized by different groups? Legal scholars might agree and call it natural law. Apparently contradictory moral systems can exist and still be

based on an underlying common moral sensibility. For example in war, each side accuses the other of immorality, but both sides may refer to similar moral principles. How can we find out what is really universal and what is different in religiously-based morality? A large cross-cultural study is needed to answer this question.

The following common features of religion argue for a deep structure to religious morality:

1. Respect for kin persons living and dead
2. Respect for other people in the group
3. Respect for life, human and otherwise
4. Rites of passage
5. Prayer
6. Mortification and sacrifice
7. Counseling of deviants
8. etc.

Understanding the conflict between science and religion certainly needs a coevolutionary theory that includes both the biological evolution of religious behavior and the process of cultural adaptation.

Defending Science

Aiming at a universal knowledge, science has detached itself from groups. It can be held by groups incidentally, but it does not define groups. This philosophical detachment from groups makes science difficult to politicize. At the same time, the lack of politicization makes it vulnerable to attack. Jürgen Habermas, a postmodernist philosopher, has attacked science as a-moral. According to him scientific knowledge is aimed at controlling the material world, not at bettering society or the self. He sees it as instrumental but not moral. He proposes that other types of knowledge contain the moral wisdom of human beings (Feenberg, 1996).

Any action that people take to control the material world

that affects other persons has moral implications, but let us not blame science for the work that people do with it. Science can be used morally, and it can help to develop a better morality. How can the planet, and its human populations, be saved from resource depletion and global warming without science? How can modern medicine make lives better without science? And let us not forget the social and behavioral sciences that study the actions of humans on other humans. They have revealed many causes of human suffering that have been neglected or encouraged by the other types of moral “wisdom” to which Habermas refers.

Science has gained a following because it is verifiable and helps to solve human problems. Religious groups would like to feed on this success, but it is hard for them to do this, because rational comparisons between the two domains of knowledge can lead to conflict. Religious knowledge and scientific knowledge can coexist if they occur in separate individuals, separate cultures, or separate cultural domains of knowledge. Mostly they do coexist peacefully. However, at times, they are found in the same cultures where people insist that their knowledge be evaluated in the same way.

When this happens, science often wins the battle to define the natural world. As it wins, it becomes more prestigious. The more prestigious it becomes, the more religious groups benefit from attaching their doctrines to it. Religious groups have the advantage of committed followers who use political power to impose their view of the world on others. School boards dominated by Fundamentalist Christians in the United States have been trying to get their ideas taught in science classes under the name of “intelligent” design; however, they have met with resistance from the American Civil Liberties Union, the Americans United for Separation of Church and State, and other groups (Economist, 2005). The imposition of Fundamentalist Christian doctrine on school children studying evolution has been most fiercely resisted by other religious groups, not by scientists. Teachers and scientists have been second string players in this conflict. However as evolutionary the-

ory becomes more important in biology, medicine, anthropology, psychology, and other social sciences, science teachers may have to fight these battles in the name of generations who will be denied their rights to a meaningful education. It is hard to see how proponents of “intelligent” design can make a case for it in education when there are so many cases of dumb design in evolution as, for example, the human appendix or the optic nerve.²

The war between religion and science actually has been going on since science first emerged as a natural philosophy. Bertrand Russell (1935) traces it across many disciplines of science and through several centuries of time. Religion battled against scientific enlightenment in Europe at every turn, against an astronomy, which saw the earth as a small planet in a vast universe, against biologically informed medicine, against the understanding and treatment of mental illness, against the evolutionary origins of all living things, especially humans, and so forth. Russell gives religion failing grade on all counts. He writes:

We have seen also that, where practical issues were involved, as in witchcraft and medicine, science has stood for the diminution of suffering, while theology has encouraged man’s natural savagery. [Russell, 1935, pg. 244]

It is often said that science has won the battle, but the battle gets fought over and over again. The modern argument that “intelligent design” is a valid scientific theory that should be taught to children studying evolutionary biology is just a new version of an old argument that science ignores the hand of God, whatever that may be, in the natural world. This particular complaint has been made since the time of

²The appendix seems to have no apparent physiological function in humans and collects bacteria that sometimes cause death. The optic nerve is in front of the retina where it interferes with vision. Both of these cases have explanations in the way that evolution builds on preexisting anatomical forms. Intelligent design seems to be a new technique for introducing an old idea, the wonder of God’s creations, into science classes.

Galileo. Galileo was declared a heretic because he believed that the heavens were governed by the same natural laws as the earth (Russell, 1935). Why does this “intelligent design” argument appear over and over again across centuries? The answer is that a wonderment of nature is the sort of emotional proof that religious knowledge needs. Science destroys this wonderment by turning mysteries into puzzles and solving them. It is not satisfied with the answer that God did it in his (or her) mysterious way. Religious people are expected to wonder at nature, not to study it. In Galileo’s time, the ignorant were expected to turn to the theologians rather than to the scientists for their answers to life’s mysteries. Because religious faith provides a source of power over people, and because the religious power holders are typically bound up with secular power holders, the threat of science can be more than purely intellectual.

The Costs of Science

The fact that religion still wins many battles indicates that there are costs to science that prevent it from dominating thought. Intellectuals like Russell are dumbfounded by the emotional and often destructive side of religious behavior. According to them it should disappear. Often the benefits to individuals and groups are trotted out to explain its survival; however, few people question the costs that science has. I will end this essay by looking at some of these. In the first place, as Durkheim recognized, science cannot easily move people to action. He wrote:

But no matter how powerful the data of the organized sciences are, they are not enough, because faith above all is a call to action, and science, as far as we can take it, still falls short of action. Science is fragmentary, incomplete; it only advances slowly and is never finished. Life, she cannot wait. The theories that are destined to come alive, to become actions, are thus obligated to move ahead of sci-

ence and to complete it prematurely. [Durkheim, 1912, pg. 110]³

In the second place, science is not available to everyone. Its logic and methods are too complicated for the average person to understand without study and training. The knowledge that science contains is not complete or comprehensible to the average person. There is too much brain work, too much education, and not enough common sense in science. There are media that popularize science for the average person, but this produces distortions upon distortions. These distortions become the image of science to the public. For example, most radical religious people are not fighting with the theory of evolution they are fighting with a popular conception of it that Michael Ruse calls *evolutionism*, a philosophy based on an ideology of human progress as much as on scientific fact (Ruse, 2005).

Science is difficult for the average person to understand. In the science news of today, one can find headlines such as “Earth’s Magnetic Pole Drifting Quickly”—clearly a cause for alarm—and “Seaworld Claims Dolphin Breeding Breakthrough.” How can the average person check the validity of such claims to knowledge? Much extra reading and perhaps some research is needed to be certain of these claims. Science is not something that the average person can be sure of. Perhaps this is why American politicians have done nothing about global warming. Only a well educated public can be convinced of scientific claims to knowledge.

Scientific knowledge is also very fragmented. Ideally it is

³ My translation of: “Mais si importants que puissent être les emprunts faits aux sciences constituées, ils ne sauraient suffire ; car la foi est avant tout un élan à agir et la science, si loin qu’on la pousse, reste toujours à distance de l’action. La science est fragmentaire, incomplète; elle n’avance que lentement et n’est jamais achevée ; la vie, elle, ne peut attendre. Des théories qui sont destinées à faire vivre, à faire agir, sont donc obligées de devancer la science et de la compléter prématurément.”

true and knowable by everyone; however, it leads to a large division of intellectual labor. Scientists in one field of knowledge often cannot communicate with those in another. The gap is even wider in the technological fields supported by pure science. The entire range of scientific and technological knowledge now cannot be known, even in a small part, by a single human being. Science has exceeded, by cultural means, the biological image-forming capacity of the single human brain by many orders of magnitude. It is supremely cultural and has little support from the early evolved modules of that brain, the modules that deal with basic survival. Science is laid down as a cultural artifact on a brain that is not well prepared for it, one that does not easily conceive of complex systems, mathematics, subatomic particles, force fields, DNA, and other fundamentals that science has found to be its most useful intellectual tools. Without the support of an advanced technology for observation, the technology of symbolic communication, and a trained and devoted cadre, modern science would disappear.

As means for developing and communicating models of an external world, science has costs that prevent it from superseding religion. It may be the pet of intellectuals, but it cannot move masses. The marginal costs of scientific education increase with the number of people educated. When religion and science clash, they eventually reach an equilibrium. Each has its benefits and its costs.

Conclusion

Durkheim was wrong in thinking that science creates the same sort of collective consciousness as religion. It does not emerge from the same brain structures. Religious knowledge is not created or refined in the same way as scientific knowledge. However, he was right about the organic nature of modern society with its wide distribution of information. Science lives in that

matrix of minds, finely divided but powerful. This is its strength and its weakness.

Although religion and science seem to clash, they only do so in a narrow range of rational thought in which religion tries to justify an adherence to a particular creed. Outside of this they pursue different goals without opposing each other. They generate different forms of knowledge. They contribute to human culture in different ways. They have different historical origins. One is ancient the other is modern. They are actually very different systems of knowledge.

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