



Science or religion?

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There was no science as such before the 16th century but religion was ubiquitous. Religious authorities were the governing bodies in societies and tribes, controlling every aspect of human lives from the dawn of civilization. The conflict between science and religion has evolved slowly as great thinkers risked their lives to question the authority of the vendors of religion and provided logical interpretations based on cause and effect. The history of modern civilization is cluttered with conflicting arguments on the existence of God and the need for a religion. Most early scientists and philosophers lacked the courage of their convictions and sold packages of “Science and Religion”. But later it transpired that while all holy scriptures promoted goodness and universal brotherhood, the science of nature, quoted in those scriptures, was at odds with facts and logic and did not hold water under unbiased scrutiny. Perhaps it is wrong to subject faith to scientific scrutiny. The debate at present has come down to: “Science or Religion”. In what follows is a chronological account of this debate amongst thinkers and luminaries over past millennia.

Let these words act as a metaphorical time machine, starting from somewhere in Europe in the middle of the 16th century. Religious fervour in Europe, particularly in Italy, is at its peak. The Christian world is run by popes in Rome and they run the empire by decrees based on the dicta in the holy Bible. The scriptures state, in no uncertain terms, that the world that the believers inherit is firmly static and the other heavenly bodies, like the sun, the moon etc. move around it. It was an article of faith for the priests, and therefore convincing to ordinary mortals, but not to Copernicus and Galileo Galilei. To uphold scientific truth, Galileo had to spend many years in prison by a decree from the highest religious authority in the land, viz. the pontiff himself, and he died as a house prisoner for a while with very few rights and very little freedom. We must thank God for Galileo; for without him we would have to endure living on a boring flat earth, permanently anchored in space. But Galileo, considered to be the father of modern science, was a man of faith, believing firmly in God and the holy scriptures, but not of course literally in every word or some interpretations of verses therein. The surprising thing is that many centuries have passed and a lot of water has flowed under the bridge, but the bridge “between God and Man” persists.

We arrive in 17th century England. Sir Isaac Newton, a Cambridge professor, created a landmark in the history of scientific evolution by propounding the theory of motions of objects [1]. At that time people lived on a spherical earth moving around the sun as postulated by Galileo. Newton applied his theory of motion and explained how celestial objects, including our Earth, move around the sun. He was a devoutly religious man, so much so that he declared that God’s hand is holding the solar system. His authority in the scientific world was so great that it took nearly a century to question his interpretation or the inadequacies of his theory of motion and his assertion that God is holding the heavenly bodies. The world had to wait for the introduction of quantum mechanics to replace Newton’s classical mechanics to account for the pitfall in his theories and the flaw in his faith. But his theory worked well and was applied in science and engineering for more than two centuries—and indeed still is—for the benefit of humanity.

As we travel through the 19th century, we stop for a while to read what is written on the walls of German cities. Lo and behold! The writing on the wall is a proclamation by the German philosopher, Friedrich Wilhelm Nietzsche, and it reads “God is dead”; a quote from one of his books [2]. His popularity and power to convince were so great that the whole of Europe reverberated with the echo, “God is Dead”. We restart our journey following a brief pause and before long we come across writing on a different wall. This one was quoted to be by God, declaring “Nietzsche is dead”. Nietzsche did die physically but God lives. I believe so does Nietzsche.

Nietzsche pioneered the concept of nihilism [3], based on the futility of existence of a “self”, let alone the existence of God. This caught on, in one form or another, amongst many of the thinkers of that period, such as Sigmund Freud, Jean Paul Sartre, Albert Camus and Bertrand Russell, to name but a few. Freud was an atheist almost all through his life, declaring “religion is a collective neurosis”. However, in his dying days he came to the conclusion that “existence of God is useful for self-realization”.

Soon after the middle of the 19th century the world, particularly the Christian world, was stunned by the publication of the *Origin of Species* [4]. In this Charles

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Robert Darwin demolished the concept and description of the creation of man in religious scriptures and expounded a theory in which man evolved from apes. Darwin had a non-conformist background but attended a Church of England school with the aim of becoming a clergyman. He went to the University of Cambridge for the required BA degree, which included studies of theology and natural history. Thank God he did not become a priest, as his parents wished! Instead he became deeply interested in the writings of William Paley, a great English philosopher, on the question of the existence of God based on the so-called teleological argument. In essence it may be explained by the following sentences: "If, for example, an intelligent being from outer space lands on Earth and find a watch, it will automatically assume that there must be a creator of this complex device. Nature is not only extremely complex but its components are in harmony with each other to sustain life and diversity. On the basis of the spaceman's logic, we have to conclude that there must be a creator who is acting through laws of nature".

Although in his treatise "religion" was considered to be a tribal strategy, Darwin still believed that God was the ultimate lawgiver and later he was convinced, albeit with occasional doubts, of the existence of a god as a "first cause". Though reticent about his religious views, in 1879 he responded to many queries by saying that he had never been an atheist in the sense of denying the existence of a god. He also remarked that "Science has nothing to do with Christ, except insofar as inculcating the habit of scientific research, which makes a man cautious in admitting evidence. For myself, I do not believe that there ever has been any revelation. As for a future life, every man must judge for himself between conflicting vague probabilities".

Around the end of the 19th century another great scientist, Michael Faraday, showed how science and knowledge could be promoted without abandoning conventional faith in the scripture [5]. He found no conflict between his religious beliefs and his activities as a scientist and a philosopher. He viewed his discoveries of nature's laws as part of the continual process of "reading the book of nature", no different in principle from the process of reading the Bible to discover God's laws.

When the debate on the nature of light was at its peak around the beginning of the 20th century, heavyweights like Paul Dirac, Niels Bohr, Werner Heisenberg et al. devised a mathematical formalism called "quantum electrodynamics" (q.e.d.). It is based on a probability phenomenon and a "phantom wave function" in a unique equation formulated by Schrödinger. With appropriate parameters and boundary conditions, the solution of this equation had been found to resolve the

century-old debate on the wave-particle duality of the nature of light [6]. Albert Einstein, however, did not join the "interpretation party". In his dying days he commented "I have been trying to know the nature of light for the last two and a half decades. The 'q.e.d.', based on statistical randomness and probability, provides only a superficial resolution to the debate, the truth lies deeper". This "randomness" in the behaviour of elementary particles (constituents of the Universe) and quantified by Heisenberg's uncertainty principle, compelled Einstein to make the famous remark, "God does not play dice" (communication with Max Born). He used the word "god" metaphorically, as he also averred, in connexion with the nature of light, "A knowledge of the existence of something we cannot penetrate is the manifestation of the profoundest reason and the most radiant beauty and only accessible to our reason in their most elementary forms—it is this knowledge and this emotion that constitutes the truly religious attitude. In this sense, and in this alone, I am a deeply religious man". Einstein believed in an abstract and impersonal God, following the concept prescribed by the great 16th century Dutch philosopher, Benedict de Spinoza. Einstein used the terminology "god" and the deterministic principle and expressed the thought that the true nature of matter is beyond the apprehension of the human mind.

We have to put on a brake for a long pause in the 20th century as the debate on the existence of God and, consequently, on the need for conventional religion moved onto a scientific basis. Scientists and intellectuals were able to question the blind faiths and some abnormal practices of religions. Around the middle of the 20th century, the great Swiss psychologist and thinker Carl Gustav Jung wrote in an essay [7], "I am convinced that exploration of the psyche is the science of the future. This is the science we need most of all, for it is gradually becoming more and more obvious that neither famine, nor earthquakes, nor microbes, nor carcinomas, but man himself is the greatest peril to man, just because there is no adequate defence against psychic epidemics, which cause infinitely more devastation than the greatest natural catastrophes". Perhaps a faith in an omnipotent being governing our psyche with the trappings of all the good things in religions may provide a safety valve.

In the twilight zone between the end of the 20th century and the beginning of the 21st century we see the resurgence of "God-bashing" by some more or less prominent scientists led by Richard Dawkins, an evolutionary biologist at Oxford. In one of his books he wrote, in the preface, "If this book works as I intend, religious readers who open it will be atheist when they put it down" [8]. I was saddened to find that a man who had, in

the past, so clearly explained scientific truth about evolution, supporting Darwin's theory, and had been highly regarded as perhaps one of the greatest thinkers and scientists of our modern time, could get so muddled up trying vainly to prove that there is no God and convert the readers to his own cult of atheism. He has sold many thousands of books but I doubt if he has been able to convert a single person with his arguments. This is only because we ordinary mortals need a god, albeit a personal one. One may criticize the excesses and misinterpretation and overinterpretation of religious dicta and many malpractices. It is good for humanity to protest against extremism in religion with all possible means at our disposal, but most scientists and philosophers have not been able to abandon God altogether. Even Jung admitted in his book, *The Undiscovered Self*, that "you can take away a man's gods, but only to give him others in return". Aldous Huxley asserted "If God did not exist, it would be necessary to invent one".

In the early 21st century a group of theoretical physicists was trying to "play God" with the development of quantum mechanics and the so-called "theory of everything". One of the pioneers in this group of adventurers, Stephan Hawking, who worked at the University of Cambridge on the theory of black holes and is probably the most famous theoretical scientist after Einstein, made a shattering concluding remark in his world-famous book *A Brief History of Time*: "if we discover a complete theory encapsulating all known forces of nature and, in time, understandable by everyone, not just by a few scientists, then we shall all, philosophers, scientists and just ordinary people, be able to take part in the discussion of the question of why it is that we and the universe exist. If we find the answer to that, it would be the ultimate triumph of human reason, for then we should know the mind of God".

The Higgs boson, the so-called "God particle", predicted over half a century ago, has been detected experimentally in recent times. The mechanism through which mass exists and the Universe is created is supposedly understood. The question now is, "what about understanding the mind of God?" The truth of the matter is we still don't really know what the Universe is, where it came from or how it came into being, whether it is the only one, or the fundamental components of its nature. It appears that the merging of the general theory of relativity and the quantum theory has the prospect of giving us the elusive "theory of everything" in the near future. Time is still a mystery and the fate of the cosmos remains uncertain to say the least. It is the same dictum, "the more we know the more we know how much we do not know". We do not know the mind of God and possibly never will.

Enter the 21st century and we find quantum mechanics permeating the scientific scenery. It is being used to explain the behaviours of mass from the cosmos and the Universe down to most elementary particles such as photons, quarks etc. It is now being applied to interpret and explain our consciousness, the very essence of religion and a container of our faith. Lucasian professor Hawking (Newton was a previous holder of the post) contested Darwin's concept that the Universe could not have been created out of chaos without a creator. He changed his mind before he died. Instead of trying to understand the "mind of God", he rejected the whole idea of God. In his latest book [9], and in an interview for the BBC's "Panorama" programme (broadcast in April 2012), he asserted that "it is not necessary to invoke 'God' to light the 'blue touch paper' and set the Universe going". According to his sermon, the seed of our existence was there at the creation of the Universe in a "big bang". The big bang was a spontaneous process governed by the laws of gravitation. Hence, there is no need for the hand of God. The question remains, as always, why, how and who introduced the law of gravity!

Science is based on facts and logic, whereas religion is a matter of faith—faith in an omnipotent, all-knowing and all-powerful and all-pervading being governing every aspect of our lives. Evolution of man from monkeys is a part of Darwin's theory of natural selection through the law governing survival of the fittest. It is a theory based on facts and logic and is widely accepted as scientific truth. Science is not out there to knock down God or bash religion out of existence. According to the creationist's argument science is one of God's most wonderful gifts to mankind, which allows mankind to understand the beauty of the natural world and the immensity of the power of its creator. The evolutionary process leading to the creation of man must be God's ingenious cosmic design, conceived and programmed before God created the Universe in a big bang. That is the "intelligent design" concept of the creationist ideology, thereby supporting the science and religion duality principle.

Let us ponder upon the creation of man, the being with a conscience! The ultimate creation of God! How can Darwin's theory of evolution be reconciled with the description in Genesis in the Bible, or in other holy scriptures? Well, before we try to answer this question we must define the terminology of "Man". We must ponder whether the man mentioned in the scriptures is the same as the one described by Darwin. Superficially the answer seems to be "yes". But when we look deeply and think laterally the answer may be different. If the answer is "no", what then is the difference, one might enquire. Darwin described the evolution of *Homo sapiens*,

meaning “wise man”, as a result of a quirk in the evolutionary process. Monkeys are designated as *Homo erectus*; i.e., upright man. *Homo sapiens* survived and thrived because they developed the intelligence to use tools, make fire, cultivate soil, live in tribes etc. But they are still apes, although the scientist categorized them under the heading “Man”. It is conceivable that the original “man”, as mentioned in the holy scriptures, was created suddenly. Perhaps when God said, “let there be a man”, a so-called “Neanderthal man” or the one of predecessors of *Homo sapiens*, albeit still apes for all intents and purposes, got a sudden inspiration, from a lightning strike maybe, and started the process of transformation to become a fully-fledged *Homo sapiens*; i.e., the “Wise Man” of the holy scriptures. The proof of this wisdom may lie in the remarkable drawings on cave walls. They may be the conscious declaration to posterity that “Man is born”.

Could it be that scripture is describing the creation of that man and not the ape-man described by the evolution theory? If so, we may have found reconciliation, or rather a resolution of the conflict between the scientific truth of evolution and the belief of creationism found in the scriptures. It transpires from analysis of the evolution of ideas of great thinkers of the past millennia that it is possible to interpret “science or religion” as a duality as long as one’s religion is based on a personal god, which

most great scientists and other thinkers have adopted. We have come a long way from the dark days of Galileo; people like Hawking or Dawkins are not persecuted for their beliefs and writings and we are at liberty to be a part of humankind without belonging to either of the two camps.

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