

**Science and religion:
a historical introduction to supposedly conflicting worldviews**

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Introduction

When having to deal with the idea of a debate between science and religion, one is immediately challenged by the many ideas thrown into the arena. Far too often, those involved in science and religion discourse tend to design models for integrating two views with limited success. It seems that many are unaware of the origin of the debate, what it is all about and where it is heading. It often results in designing misplaced models such as warfare or conflict models which tend to fuel the argument that there can be no concord between the two disciplines.

Unfortunately, and characteristically, lines remain blurred and ideas are confused in instances where these models are applied incorrectly. The key then is to understand the reason for this even though some models seem to be adequate on the surface. In my opinion, the best starting point for constructing a way forward to find concord is to approach the conflict in terms of its historical development (a diachronic approach) and determine why there seems to be antagonism between science and religion – if there is any. In order to do this, one would need to grapple with specific cases that have dominated the discourse over the centuries and the position behind the supposed arguments in an attempt to uncover the true nature of the arguments.

Answering fundamental questions on religion and science

A historical understanding of the science and religion debate is required to deal with perceived arguments and to draw proper conclusions. In my opinion one can start by asking three questions:

- Where did the argument originate from?
- What is the argument about and what is the motivation behind the argument?
- And lastly, where is the argument going to? Is there any progress in reconciling the ideas of science and religion?

These three questions raise fundamental difficulties one has to overcome in order to make meaningful sense of the debate and move on to the significant

work that many natural scientists and theologians are doing in the process of finding concord between science and religion discourse.

The perceived argument between science and religion

In the first instance I am persuaded that science and religion discourse is not as problematic as expressed by the many books and articles written on the subject specifically when all the unnecessary terminology and biased arguments are properly evaluated and separated. However, one must also not be too naive on issues surrounding the subject. It is complex rather than problematic. Jonathan Pagano (2011) states that “Scholars now speak of the ‘Complexity Thesis’ in which the long history of science reveals numerous and complex combinations of scientific and religious ideas.” He furthermore, states that “the conflict theory is now seen as distorted and incomplete”. Powerful polemic arguments are undoubtedly being thrown into the mix by both the religious and scientific community, in an attempt to constitute a case for their particular ideas. Conversely, academics are called to study and make contributions regardless of how controversial their research may be. But, it is the way in which the arguments and the motives behind them are presented that seems to be the cause of confusion. The question whether their discourse is grounded in an independent, conflict, dialogue or integration model as formulated by Ian Barbour (2000) can be asked. The difficulty lies in the fact that the direction in which the thesis moves will be determined by the model that is favoured.

Furthermore, over the centuries, there has been a perception that there is much disharmony and conflict between science and religion because of a few highly publicised incidents. As correctly stated by Numbers (2009:1–7) Plantinga (2011:6) and Russell (2002:3) one only has to read the conflict thesis of Andrew Dickson White (1869) and John William Draper (1874) to see how the antagonism between the two disciplines developed (cf. Barbour 2000:10–11). Evidence to the contrary – that much concord is found between the two disciplines – can also be found in the latest works of esteemed scholars such as Alvin Plantinga (2011) and Collins and Giberson (2011). For instance, Giberson and Collins (2011:84) state that, apart from the ‘warfare metaphor’ espoused by the books of White and Draper and a few skirmishes like the Galileo affair, science and religion were actually supportive of each other. In line with this, Plantinga (2011:165) contends that there is deep concord rather than conflict between the disciplines.

However, to solidify the idea of concord between the disciplines, one would need to go back a few centuries to determine how the perceived conflict between science and religion was originally stimulated. This would necessitate beginning with the Catholic Inquisition of Galileo Galilei and his critical assessment of the Catholic Church’s view of a geocentric solar

system. One would then move on to the Darwinian debate between Thomas Huxley and Samuel Wilberforce, the Scopes trial and the argument against evolution and conclude with the 2005 Dover school court case involving Intelligent Design. These particular cases were highly publicised at the time and they still generate much controversy in arguing that there is little concord between science and religion (cf. Dixon 2008; Numbers 2009; Russell 2002:3–12).

Regrettably, as stated previously, these specific episodes in science and religion history had been played out countless times in seminars, books, articles and magazines which tend to stimulate the idea that conflict or independent models abound between science and religion and thus nothing will change in future. However, it is my contention that this perception is false.

As presented by Russell (2000:15) the conflict model (thesis) ignores the many documented examples of science and religion operating in close alliance. This was most obviously true of the seventeenth and eighteenth centuries, as evidenced by the names of Boyle, Newton, Blaise Pascal (1623–62), Marin Mersenne (1588–1648), Pierre Gassendi (1592–1655), and Isaac Beeckman (1588–1637). Russell further states that since then, noted individuals continued to make strenuous efforts to integrate their science and religion as testified to the poverty of a conflict model. This was particularly true in Britain, where representatives in the nineteenth century included most famously Michael Faraday (1791–1867), James Joule (1818–89), James Clerk Maxwell (1831–79), William Thomson (Lord Kelvin [1824–1907]), and George Gabriel Stokes (1819–1903).

Today, there is more dialogue and integration between science and religion, than ever before, since these noted scholars have started their quest to find concord between the two disciplines. (cf. Alexander 2001; 2008; Barbour 2000; Clayton 1999; Collins 2003; Collins and Giberson 2011; Dixon 2008; Ferngreen 2002; Numbers 2009; Plantinga 2011; Polkinghorne 2009).

However, this does not answer the question: Why is there a supposed argument between the two disciplines? In dealing with this, the first question to be asked and answered is: Where did the supposed argument begin? Realistically, one would commence with the most famous recorded event in history, namely, the trial of Galileo Galilei by the Catholic Church and the reposition behind the arguments to uncover the facts.

Galileo Galilei

Anyone who has read or studied the debate between science and religion will at some time, read of the June 1633 Catholic Inquisition of Galileo Galilei (1564–1642). Born in 1564, Galileo is undoubtedly one of the great figures in the history of science as indicated by Polkinghorne (1998:5–6) and Williams (2004:44–47). Furthermore, as rightly stated by Dixon (2008:23), Galileo is celebrated as one of the most well-known scientists who sought harmony between the Bible and the knowledge of nature. According to Blackwell (2002:106), he was one of only a handful of natural philosophers who, at the time, thought it likely that Copernican astronomy was an accurate description of the universe. It was the combination of Copernicus's mathematical equations and Galileo's use of observation of the solar system via the newly discovered telescope that made him formulate an argument against the Catholic idea of geocentrism. In this, the Catholic Church maintained that the earth was static and the centre of the universe (cf. D'Addio 2004:25–26; Fermi and Bernardini 2003:75–76; Polkinghorne 1998:5).

A geo or heliocentric universe

According to James and Mendlesohn (2003:16–17), the idea of Catholic science at the time, favoured Plato and Aristotle's model of a geocentric universe, that is, all the planets revolved around the earth. It was based on several literal interpretations of the scripture that seemed to show the earth as stationary (cf. 1 Chronicles 16:30, Psalm 93:1, Psalm 96:10, Psalm 104:5, Ecclesiastes 1:5). It was also founded on the standard astronomical model of the second century Greek astronomer, Ptolemy, as rightly stated by Dixon (2008:23). Clearly Galileo's proposed model based on Copernicus, which was alternative to the prevailing and traditionally held model of Catholic science, was, in a sense, dissent. By 1616, the Catholic Church condemned Copernicanism as a heretical system, which added to Galileo's trouble with the Vatican authorities as specified by Blackwell (2002:105). However, it was many years later that the argument was compounded by Galileo's publication *Dialogue concerning the two chief world systems* in 1632 which was founded on Copernicus.

Unfortunately, as rightly stated by Dixon (2008:26–29), Galileo came up against an institution that had the political power to make creeds and orders and to call people to judicial meetings. The Church, at the time, answered to no one except the hierarchy in it. Unfortunately, Galileo as a scientist and philosopher seeking the truth, had walked into a virtual minefield of political power, and stood no chance to be heard. This led to the Catholic Inquisition and the censure of Galileo (cf. Finocchiaro 2007; Hofstadter 2010; Speller 2008).

It must be added that Galileo did have a friend in Maffeo Barberini, Pope Urban VIII, as stated by Dixon (2008:28) and Fermi and Bernardini (2003:78–79). However, history shows that Galileo, against the express desire of the Pope, printed his findings which resulted in the Pope having to censure Galileo's work; but this does not fully answer the question posed in the beginning. We know where the argument originated from, but we still need to find the 'why' of the argument – (the reposition behind the argument) and uncover the real motive of Galileo's censure. This is where it gets interesting; and many seem to overlook the point in their eagerness to label the Galileo trial as an argument around science and religion.

Galileo and church politics

According to Dixon (2008:22-31) it was more about the politics of knowledge than a scientific and religious concern. Firstly, it was political in the sense that it had to do with the nature of reality, the party who had the authority to discover and describe it and the methods that would be used. Secondly, it had to do with the party who had the influence to make statements on these issues – Galileo or the Church. Clearly the Church had much power over the people and, according to the social structure of the Catholic Church; they were the custodians of knowledge and were the only authorised vehicle to disseminate this knowledge to the people. Thirdly, according to Giberson and Collins (2011:90), Dixon (2008:23–24) and Platina (2011:7), the argument was between two opposing camps in the church, namely Catholic astronomers, who adhered to Copernicus' mathematics and a heliocentric solar system, and those who accepted the long held Ptolemaic model of a geocentric solar system. It was a science versus science dispute, rather than a science versus religious dispute.

Consequently Galileo had no right in their view to make any public statements on the subject that counteracted the long held views taught by the Church. One immediately realises that the Catholic Church at the time was more of a political establishment than a purely religious one with religious concerns. Thus one can safely infer that in the case of Galileo, it had little to do with an argument between science and religion and more to do with church politics and internal strife than anything else.

One can then move on to the supposed and highly publicised argument between Thomas Huxley and Samuel Wilberforce on Darwinian evolution which is a classically used case in debates to prove disingenuously that there is much conflict between science and religion. However, on closer scrutiny, one sees that this is not the case.

Darwinism, and the Huxley and Wilberforce debate

Undoubtedly, the well publicised Thomas Huxley and Samuel Wilberforce Oxford debate of 1860 has indeed advanced the argument that there is little concord between science and religion. The debate is often viewed as a conflict between the Christian views of a zealous cleric, Samuel Wilberforce and his opponent, Thomas Huxley, a biologist and ardent supporter of Darwinian evolution. However, on closer inspection, one recognises that the debate went much deeper than a conflict between two opposing forces. According to Livingstone (2009:152), what supposedly transpired that day, had often been told and disingenuously embellished in numerous writings on the subject, including, Andrew Dickson White's work *A history of the warfare of science with theology in Christendom* (1869:70–71).

Furthermore, the media coverage of the event, and the subsequent writings and discussions that followed, gave the strong impression that no concord was established between science and religion in the debate. In fact, it is often quoted and cited that Huxley supposedly proved scientifically that Darwinism was correct (cf. Caudill 2005:44–45). But as with the Galileo trial, what is expressed on the surface and perceived by the general audience is not what took place surreptitiously. As one move behind the professed argument a picture emerges that is far from what has been expressed in the various conflict writings on the subject as voiced by Livingstone (2009:155). The picture that becomes apparent is one of a clash between different scientific visions rather than a conflict between science and religion. Indeed, as shown by Gilley and Loades (1981:285–308), and Livingstone (2009:157), Wilberforce, rather than appealing to scriptural authority, persistently called on the testimony of scientific practitioners. Furthermore, Wilberforce writes that: “we have objected to the view with which we are dealing solely on scientific grounds ... We have no sympathy with those who object to any facts or alleged facts in nature, because they believe them to contradict what it appears to them is taught in Revelation” and Livingstone (2009:158) states that “The feud, to put it another way, was between different styles, and different cohorts, of scientific practice” (just as expressed in the trial of Galileo). The stated argument between Huxley and Wilberforce was a difference of opinion between scientists whether Darwinian science would undermine prevalent and current scientific practice at the time rather than a religion versus science argument between a cleric and an evolutionist as is often betrayed. The same can be said about the Scopes trial. When moving beyond the surface of the argument; a different image unfolds.

The Scopes trial and the argument against evolution

On 21 March 1925, Austin Pay, the governor of Tennessee put his signature to an Act making it unlawful for a teacher employed by the State of Tennessee to teach any subject that was contrary to divine creation as taught by the Bible especially evolution. This is where Dixon (2008:83–90) makes the right connections. He shows that it had little to do with science and religion and more to do with greedy businessmen and lawyers.

The American Civil Liberties Union saw this legislation passed as an excuse to take a stand against intellectual freedom rather than seeing it as legislation passed to stop the teaching of Darwinism in schools. They placed an advertisement asking for a volunteer to bring a test case. Some of the lawyers and businessmen from Dayton saw this as an opportunity to put their town on the map and persuaded their local science teacher, John Scopes to be the volunteer. Dixon (2008:84–86) then goes on to explain the consequences of the trial and the sham that surrounded it. Although John Scopes was convicted and the businessmen and lawyers got their fame and fortune, Dixon correctly states that it would be another 40 years before another trial, pitting evolution against creationism, would take place. This subsequent trial is often referred to as the Dover School's trial and probably created just as much controversy as The Scopes trial.

The Dover Schools trial and Intelligent Design

The Dover Schools trial of 2005 is possibly the most widely known trial on science and creation to take place in America because of the vast technology available to disseminate information. It pitted Intelligent Design (ID) against scientific evolution. The idea behind Intelligent Design was to show that the science it presented could be taught in schools without pushing a biblical creationist belief which had already been shown to be poor in science and religion. However, this particular trial and argument was not between science and religion, but whether ID was legitimate science. It was and still is an argument between scientists, specifically biologists, as shall be shown, rather than a science versus religion debate. The religious angle to ID is rather to be seen as an appendage to the argument rather than one of the primary arguments in the trial. In fact, as far back as the 1980's and 1990's, Davis and Kenyon (1989:160–161) are on record as defining ID as a frame of reference that "locates the origin of new organisms in an immaterial cause" and then ascribes this to be "devised by an intelligent agent". With ID the idea of 'who' the actual creator is remains open to speculation. In fact, one could say that it was God, gods, or even some extra-terrestrial force. The idea of ID is to be all things to all people regardless of their belief system.

Nevertheless, the opponents of ID, rather than bringing in a religious argument, state, as voiced by Collins (2003:286) that: “The opponents of intelligent design are afraid it will come to be treated as a valid part of science ... and to accept intelligent design would be a dumb move, because it really is a dumb idea.” Again, it has very little to do with the science and religious debate, but rather the science communities concern as to its merit as a scientific enterprise in opposition to Darwinian evolution. In fact, ID maintains that they hold no specific loyalty to any organisation or view and that its methods in presenting science are legitimate. But before dealing with the Dover School trial and its consequences for ID, the following section will briefly explore its ideas on science, starting with its history.

A brief history of Intelligent Design

Contrary to some speculations, ID is not a new idea. As conveyed by Murphy (2010:63–64) the appearance of design in nature was noted by the ancient Greeks (cf. Fanklin 2001:229). Murphy further notes that the introduction of the term ‘intelligent design’ was little more than a clever way of trying to promote creationism under another name. This is as a result of many court cases that creationists have lost over the years in trying to get their view of science accepted by mainstream scientific organisations; including attempts to get accreditation to confer qualifications. As far back as 1968 creationists had lost the battle when the Supreme Court declared its argument to ban evolution from being taught in schools unconstitutional. Since then they have lost several court battles around this issue and many others (cf. Moore 2002:ch1–7). In response, creationists came up with the idea to use the term Intelligent Design as a term that was politically more correct than creationism. This, they believed, would give creationists a little more credibility (cf. Murphy 2010: 63–64). One must concede, as expressed by Murphy (2010: 63–64) that ID is a little more sophisticated than earlier creationist movements and their scientists more qualified in their respective disciplines as shall be shown.

A brief explanation of Intelligent Design

According to Ruse (2009:207), the term *Intelligent Design* began circulating, after the US Supreme Court ruled in 1987 that it was unconstitutional to require the teaching of *creation science* in classrooms. But, it was not until 1990 that a legitimate scientific attempt was made to validate ID’s reputation as a viable alternative to the teachings of Darwinian evolution. The answer came, it was believed, in the form of a publication entitled *Darwin’s black box*, written by Michael Behe (1996), a Lehigh University biochemist (cf. Ruse 2009:208). In his book Behe focused on what he termed ‘irreducible

complexity'. It is a system, according to Ruse (2009:208–209), where all of the parts are intricately matched together in such a way that the system breaks down if any part is removed. Behe's (1996:36) argument was that an irreducible complex system could not be produced directly by slight successive modifications, because any precursor to an irreducible system with a missing part was by definition non-functional.

Undoubtedly, it was Behe's work and the later publications of prominent members of the ID movement such as William Dembski (1998; 1999), Stephen Meyer (2003) and Jonathan Wells (2000) that set the premise for ID's attempt to get their view of science into public schools. This resulted in what is today known as the Dover Schools Trial.

The Dover trial

The Dover School trial, as presented by Ruse (2009:213–214), was a direct result of a group of concerned parents in the Dover area of Pennsylvania filing a lawsuit against the school board's decision to recommend Davies and Kenyon's book *Of Pandas and people: the central question of biological origins* as a way to make students aware that there were unexplained gaps in Darwinian evolution. As previously stated, Davis and Kenyon were known advocates of ID from as early as the 1980's and 1990's. The parents were also concerned about the book which promoted a pseudo-science (cf. Young & Edis 2006) instead of the accepted science of biology as presented by Darwin.

Again, one infers that religion had little to do with the argument and more to do with which type of science was to be taught. Once again, religion was simply an appendage to the argument rather than one of the primary arguments presented. The result of the Dover trial was that ID was shown to be nothing more than creationism packaged in a different format. Its use of science, especially biology, was shown to be flawed and unacceptable as an alternative to the Darwinian science currently taught in the American schooling system.

Giberson and Collins (2011:81) rightly contend that "the (mis)perception that science and religion constantly engage each other in disputes is created by a media in love with conflict. Every time a controversy erupts over evolution, stem cells, genetics, or cosmology, the media reports that science is once again challenging religion". The problem is further compounded when scholars, and the general public, read these reports and assume, quite vigorously, that science and religion should remain grounded in an Independent Model rather than placed into the arena of a Conflict Model or for that matter, a Dialogue and Integration model.

Conclusion

There is little doubt that many of the historical examples presented are highly charged arguments which have caused great concern among theologians and those in the natural science community. Clearly, they are perceived to be grounded in a conflict model rather than an integrative model. The general consensus is that the arguments presented are focused on keeping each view in an independent or conflict model rather than one of dialogue and complementarity. However, it was shown that rather than being a religious versus science issue, it was, in most cases, a science versus science dispute such as those revealed in the trial of Galileo, the Wilberforce and Huxley debate and the ID's attempt to become an acceptable scientific alternative to Darwinism in the American Schooling system. It was, furthermore, shown that in the case of the Scopes trial, the perceived dispute was more inclined to greed and a desire for power and control than a dispute between science and religion.

There is not much doubt that once the arguments are properly evaluated and reasoned through critically, a different image emerges to the one that is generally held by scholars.

Works consulted

- Alexander, D.R. 2001. *Rebuilding the matrix: science and faith in the 21st century*. Grand Rapids: Zondervan.
- Alexander, D.R. 2008. *Creation or evolution: do we have to choose?* Oxford: Monarch Books.
- Barbour, I. 2000. *When science meets religion: enemies, strangers or partners?* New York: HarperCollins Publishers.
- Behe, M. 1996. *Darwin's black box: the biochemical challenge to evolution*. New York: Free Press.
- Blackwell, R.J. 2002. Galileo Galilei, in *Science and religion: a historical introduction* edited by G.B. Ferguson. Baltimore Maryland: The John Hopkins Press.
- Caudill, E. 2005. *Darwinian myths: the legends and misuses of a theory*. Knoxville TN: University of Tennessee Press.
- Clayton, P.D. 1999. *God and contemporary science*. Edinburg: Edinburg University Press.
- Collins, C.J. 2003. *Science and faith: friends or foe?* Wheaton Illinois: Crossway Publishers.
- Collins, F.S. & Giberson, K.W. 2011. *The language of science and faith*. Downers Grove Illinois: IVP Press.
- Davis, P. & Kenyon, H. 1989. *Of Pandas and people: the central question of biological origins*. second edition. Dallas: Haughton Publishing.
- D'Addio, M. 2004. *The Galileo case: trial, science, truth*. Herefordshire UK: Gracewing Publishing.

- Dembski, W.A. 1998. *The design inference: eliminating chance through small probabilities*. Cambridge: Cambridge University Press.
- Dembski, W.A. 1999. *Intelligent design: the bridge between science and theology*. Downers Grove, Illinois: InterVarsity Press
- Dixon, T. 2008. *Science and religion: a very short introduction*. New York: Oxford University Press.
- Draper, J.W. 1874. *History of the conflict between religion and science*. New York: Appleton.
- Ferngreen, J.B. 2002. *Science and religion: a historical introduction*. Baltimore Maryland: John Hopkins University Press.
- Fermi, L. & Bernardini G. 2003. *Galileo and the scientific revolution*. New York: Courier Dover Publications.
- Finocchiaro, M.A. 2007. *Retrying Galileo, 1633-1992*. CA: University of California Press.
- Franklin, J. 2001. *The science of conjecture: evidence and probability before Pascal*. Baltimore: Johns Hopkins University Press.
- Gilley, S. & Loades, A. 1981. Thomas Henry Huxley: the war between science and religion. *Journal of Religion* 61:285–308.
- Hofstadter, D. 2010. *The earth moves: Galileo and the Roman Inquisition*. New York: Norton & Company.
- James, E. & Mendlesohn, F. 2003. *The Cambridge companion to science fiction*. Cambridge, UK: Cambridge University Press.
- Livingstone, D.N. 2009. That Huxley defeated Wilberforce in their debate over evolution and religion, in *Galileo goes to jail: and other myths about science and religion*, edited by R.L. Numbers Cambridge Massachusetts: First Harvard University Press.
- Meyer, S.C. & Campbell, J.C. 2003. *Darwinism, design, and public education*. East Lansing: Michigan State University Press.
- Moore, R. 2002. *Evolution in the courtroom: a reference guide*. Santa Barbara CA: ABC-CLIO Publishers.
- Murphy, N. 2010. The Intelligent Design Movement has the unfortunate effect of promoting the view that science and Christian teaching are incompatible, in *The prism and the rainbow: a Christian explains why evolution is not a threat*, edited by Martin, JW. Baltimore, Maryland: JHU Press.
- Numbers, R.L. (ed.) 2009. *Galileo goes to jail: and other myths about science and religion*. Cambridge Massachusetts: First Harvard University Press.
- Platinga, A. 2011. *Where the conflict really lies: science, religion and naturalism*. New York: Oxford University Press.
- Polkinghorne, J. 1998. *Science and theology: an introduction*. Minnesota: Fortress Press.

- Polkinghorne, J. 2009. *Theology in the context of science*. London: Yale University Press.
- Ruse, M. 2009. That Intelligent Design represents a scientific challenge to evolution, in *Galileo goes to jail: and other myths about science and religion*, edited by Numbers, RL. Cambridge Massachusetts: First Harvard University Press.
- Russell, C.A. 2000. The conflict of science and religion, in *The history of science and religion in the western tradition: an Encyclopaedia*. Vol 1833, edited by Ferngren, Gary B. New York: Garland Publishing.
- Russell, C.A. 2002. Science and religion: conflict or complexity, in *Science and religion: a historical introduction*, edited by Ferguson, GB. Baltimore Maryland: The John Hopkins Press.
- Speller, J. 2008. *Galileo's inquisition trial revisited*. Bern: Peter Lang.
- Weels, J. 2000. *Icons of evolution*. Washington DC: Regnery Publishers.
- White A.D. 1896. *A history of the warfare of science with theology in Christendom*. New York: Appleton.
- Williams, H.S. 2004. *A history of science: Part 2*. Whitefish Montana: Kessinger Publishing.
- Young, M. & Edis, T. 2006. *Why Intelligent Design fails: a scientific critique of the New Creationism*. New Jersey: Rutgers University Press.

