

## **Christians in Science Lecture 6 at St Paul's Church, Camberley 27<sup>th</sup> June 2017**

### **'Can a Christian believe in Evolution' - Dr Denis Alexander**

Dr Alexander, a research biochemist and Director of the Faraday Institute for Science and Religion at St Edmund's College, Cambridge, gave a wide-ranging and extremely erudite talk on the subject of evolution and Christianity to an appreciative audience of about 150. He dealt firstly with the development of evolutionary theory to the present day and then on how he related his views as a committed evangelical Christian to the science of evolution, much of which is detailed in his book 'Creation or Evolution - Do we have to Choose' and other publications.

No one could talk about evolution without first referring to Charles Darwin and his ground-breaking book 'On the Origin of Species' published in 1859. Here Darwin set out his theory of (biological) evolution based on the tenet that all species of organisms arise and develop through the natural selection of small, inherited variations which increase an organism's ability to compete, survive and reproduce, and through this mechanism to lead to the evolution of new populations. Dr Alexander alluded to Darwin's 'Tree of Life' where all living organisms were seen to be linked. Perhaps surprisingly, in contrast to today's world, where 1-2% of the UK population 'self-identify' as 'Creationists' (and hence would dispute Darwin's theory), clerics, even conservative ones, and thinkers of the mid-19<sup>th</sup> century ('Darwin's Forgotten Defenders') largely supported and welcomed 'Darwinism'. Amongst these was Darwin's friend the Rev Charles Kingsley who wrote in the preface to the 2<sup>nd</sup> edition of Darwin's book 'I gradually learned to see that it is just as noble a conception of Deity to believe that He created a few primal forms capable of self-development into other and needful forms ...'. By contrast, the greatest negative reaction to Darwin's thinking was from fellow scientists of the day who didn't feel his data sufficiently supported his theory. However, by the mid-1860's there was a general acceptance of 'Darwinism' and even within the 'Fundamentalists' of the early 20<sup>th</sup> century there was support, the great theologian BB Warfield writing 'I do not think that there is any general statement in the Bible, or any part of the account of creation either as given in Genesis 1 and 2 or elsewhere alluded to, that need be opposed to evolution'. RA Torrey, a leading American evangelist and writer, thought Darwin to be the greatest scientific thinker of the 19<sup>th</sup> century and declared that anyone familiar with the use of words in the Bible knows that the word 'day' refers not to a period of 24 hours but to an entirely indeterminate period of time. Perhaps unfortunately, evolution, which is strictly only a biological theory, has been hijacked to support a large number of ideological beliefs or 'isms' - racism, terrorism, Communism, eugenics, feminism, atheism, capitalism etc.

Modern evolutionary theory has benefitted enormously from the genetic discoveries in the 20<sup>th</sup> century about which, of course, Darwin knew nothing. We all carry in our genome the evidence of countless past genetic events which clearly demonstrates our common descent from earlier forms of life so that we are all 'walking fossil museums' as Dr Alexander put it. Current evolutionary science still recognises evolution as a 2-step process - firstly mutation or variation of the genome, which can happen in a number of ways. In the second step this variation is passed onto the progeny of the particular species some of whom may as a result have a slight advantage in terms of survival and/or reproductive success and hence populations evolve (Darwin's natural selection). This is in general quite a gradual process. An individual species can be defined as a group of populations that do not normally interbreed with other populations. Speciation - the formation of distinct new species from existing species - can take place by different mechanisms, allopatric where there is some sort of barrier between populations which then evolve separately perhaps over thousands of years to the extent they can no longer interbreed, and sympatric where it happens within a population. Speciation is readily observable in plants such as Tragopogon (Salsify) grown as a food source in N America.

Generally it is much slower in animals, but has been observed to occur with Cichlids, a freshwater fish found in African lakes such as Lake Victoria, which has evolved (sympatrically) through a process of adaptive radiation into 2-3,000 distinct but closely related species over a 100,000 years or so. A great deal of new data has been accumulated on the evolution of human beings both from fossils and genetic research, more particularly the latter, and this indicates that we are not in fact descended from apes/monkeys but that we share a common ancestor of about 6 million years ago, and since then have been evolving down separate pathways with a number of hominid (man-like) intermediates down to the present day. The arrival of chimpanzees (kind of first cousins to humans) has been dated to about 600,000 years ago and the first 'anatomically modern' humans to about 300,000 years ago. Early human evolution is thought to have occurred in Africa with several waves of emigration (mainly from about 60,000 years ago) to other parts of the then world. Despite earlier thinking re separate species, it has been shown that modern non-African humans do share a small, but significant, part of the DNA of both Neanderthals and the latter's 'first cousin' the Denisovans, suggesting that there was some interbreeding between hominid species. On the strict definition of a species (reproductively isolated) modern humans emerged only about 35,000 years ago when Neanderthals became extinct. Both the data and the details of modern evolutionary theory are, however, in a state of flux - evolving in short - and Martin Nowak, an evolutionary biologist, would like to add (human) cooperation as a third key element to the theory.

So, Dr Alexander asked, 'Can a Christian believe in evolution?' Before answering this question he launched into a theological reflection on what the Christian understanding of 'creation' might be. The view that emerges from earlier thinkers such as Thomas Aquinas - long before the evolution debate was ever thought of - is that God is the source and ground of absolutely everything that exists, material and otherwise, cats, dogs, the laws of thermodynamics, neutrons, Higgs-Boson, you and me etc. Without making a case for the existence of God per se, Dr Alexander said that this implies that God cannot be part of, and is distinct from, the 'created order'. In this view God is the source of it. So, what do we mean when we speak of God as Creator? When human beings make ('create') something new it is generally from existing materials so that the human act of creation is never the complete 'cause' of anything. God is the complete 'cause' of everything. As Bill Carroll, a Fellow in Theology at Oxford, puts it - 'God's causality (the relationship or mechanism between a cause and effect) is so different from the causality of creatures that there is no competition between the two ... God causes creatures to be causes. Creation is not some distant event but the ongoing complete causing of everything that is'. Creation is about the how and why anything exists at all and as God is not constrained by the created order, as we humans find it, we cannot possibly second-guess how He goes about creation. As Isaiah put it '... as the heavens are higher than the earth so are my ways higher than your ways and my thoughts than your thoughts' and the Psalmist - 'Our God is in heaven; he does whatever pleases him'. No-one observing planet earth from space over billions of years could ever have predicted a priori how the created order we see could have taken place nor, for example, come up with the theory of quantum mechanics or for that matter predict that the earth would be home to homo sapiens. Scientists can only describe things as they are. And so, we have the transcendent power of God but also His 'immanence' in creation as well described in Genesis 1 and elsewhere in the Bible, and by Moltmann - 'the whole creation is a fabric woven by the Spirit and is therefore a reality to which the Spirit gives form'. The New Testament refers also to a Christological creation as in the beginning of John's gospel ('...through the *logos* all things were made ...') and in Colossians 1 ('... by him (Christ) all things were created ...'). God in creation has been likened to a great composer conducting his own music or to an artist creating a picture, with God the Son as the model, and the Holy Spirit the creative energy behind the work of art. Dr Alexander also dismissed the 'God of the gaps' concept of God that many people subscribe to, including some atheists and indeed some Christians. The 'gaps' are the areas of science (here referring to the evolutionary scheme) where we have as yet little or no understanding, for example how DNA first evolved, and these are seen to be where God is active - 'what God does'. The problem with this view of god - the one that Richard Dawkins *doesn't* believe in? - is that as these gaps are gradually filled in God is

diminished. So not a good idea. In contrast, as Christian scientists and biologists continue to research and explore the natural world, they see new scientific discoveries as enhancing the glory and wonder of His creation. Dr Alexander didn't think his view of God entailed an entirely deterministic universe but one where God has given it 'functional integrity' which enables us humans to be here and through scientific endeavour to learn more about it. He suggested there are two 'complementary narratives' - a theological one which deals with 'why' God does something, what was His purpose in the evolutionary process, and a scientific one attempting to establish the 'how', the mechanisms, behind God's actions. On the other hand, Dr Alexander agreed with the view expressed by Richard Dawkins in his book 'The Blind Watchmaker' that Darwinism is not a theory based on chance. He argued that evolution could be likened to some scientific and engineering processes which have defined and certain outcomes but where an element of chance is also involved in the process. The National Lottery always has a winner - eventually! He saw evolution as being very far from a chance process but in reality a tightly regulated one with some predictable outcomes. There is an element of randomness in the mutations that occur in the genome over time but natural selection ensures that in the end an enhanced species evolves. Dr Alexander argued that natural selection looks to be highly organised and he cited the process of 'convergence' where similar adaptive solutions occur, for example in the development of the 'eye', in very different species. In his view, the 'organised and constrained way in which evolution develops is consistent with a God who has purposes and intentions for His universe and for biological life on earth'.

And so, Dr Alexander said the answer to the question posed in the title of his address, was clearly 'yes' on sociological grounds - millions of Christians have affirmed Darwinism since the theory was first proposed; it was 'yes' theologically as he saw no conflict between the fundamental doctrines of Christianity, such as redemption and new life in Christ, and the biological theory of evolution; and it was 'yes' also on scientific grounds, as Christians are called to be honest and as part of their witness to be open-minded to new scientific knowledge regarding God's creation.

Dr Alexander answered questions on a number of topics ranging from 'Adam and Eve to the increasing popularity of 'Creationism'. While not suggesting that the Bible should be used as a scientific textbook, Adam (and Eve) could be regarded as the first man (couple) to have some knowledge of God and of the alienation caused by disregarding His precepts (sin). There were certainly a number of 'Adams' around 8,000 years ago but, of course, there was no concept of resurrection in the Old Testament, and death was regarded simply as a natural event. In answer to a question relating to the evolution of certain complex organs such as the eye, Dr Alexander felt we did have quite a good understanding of the eye through a study of the development of light-sensitive organs in many different species. However, the evolution of the genetic code (DNA) is considerably more challenging. While Christians are all creationists in the sense of believing in a creator God the rise of 'Creation Science' firstly in the US and now in the UK, where the earth and its many species are seen to have been created some 10,000 years ago precisely as described in Genesis, flies in the face of all modern scientific knowledge and is difficult to understand..

The next CIS meeting dealing with Science and Faith issues is on Tuesday 17<sup>th</sup> October 2017 at 7.30 pm at High Cross Church, Camberley and will be given by the Rev Professor Alasdair Coles. His subject will be:

*'God and the Brain: What Neuroscience can teach us'*

John Wood

