This paper argues that it is a misconception to oppose the concepts of creation and evolution. ‘Creation’ is a theological term acknowledging the dependence of all that exists upon the authorship of the Creator. ‘Evolution’ refers to our current understanding as to how God has brought biological diversity into being. Both accounts are required to do justice to what we as scientists observe.
ities between putative relatives and its obverse (rudimentary organs), and interpreting biogeographic anomalies (i.e. the restriction of kangaroos to Australia, penguins to the Antarctic, polar bears to the Arctic, etc).

The arguments of the *Origin* were quickly accepted, despite continuing assertions to the contrary by those unfamiliar with the relevant historical literature. Claims of a major conflict between science and religion are grossly exaggerated. For example, the infamous debate between the Bishop of Oxford and Thomas Huxley at the 1860 British Association for the Advancement of Science was not really about evolution versus creation or even science versus religion. On the Bishop’s side it was about the danger of legitimising change in an age when he believed it was having deleterious social and theological effects; Huxley was aiming for the secularisation of society, his aim was to establish the legitimacy of science against what he regarded as improper influence of church leaders. By 1884, episcopal imprimatur had been given to the *Origin* by Frederick Temple, Bishop of Exeter and soon to become Archbishop of Canterbury: “[God] did not make the things, we may say: no, but He made them make themselves… It has often been objected to Paley’s argument that it represents the Almighty as an artificer rather than a creator… But this objection disappears when we put the argument into the shape which the doctrine of Evolution demands.”

Five years later, Oxford theologian Aubrey Moore wrote, ‘The break up of the medieaval system of thought and life resulted in an atomism which if it had been more perfectly consistent with itself, would have been fatal alike to knowledge and society… God was ‘throned in magnificent inactivity in a remote corner of the universe’… Science had pushed the deist’s God farther and farther away, and at the moment when it seemed as if He would be pushed out altogether, Darwinism appeared and, under the disguise of a foe did the work of a friend.”

Darwinian Evolution

Although by the 1880s there was little dissent that evolution had occurred4 nor that Darwinian natural selection was a plausible mechanism for it, there was no clear understanding of the details of evolutionary mechanisms and in particular about the causes and maintenance of variation. This changed in 1900 with the ‘rediscovery’ of Mendel’s results and the founding of the science of genetics. Alterations (‘mutations’) in the inherited factors (or genes) studied by the early mendelists (or geneticists) were the obvious source of new variation, which provided the material for selection to act. However, mutations were generally:

- deleterious in their effects (e.g. removing an organ or function);
- major in their consequences, while Darwin had suggested that variants useful for selection would have small effects; and
- inherited as recessive characters, whilst ‘advantageous’ traits in nature were almost all inherited as dominants.

This led to the perception that evolution was not driven by natural selection, and a plethora of speculation about possible alternative mechanisms, including nomogenesis, ‘age and area’, holism, and a variety of internal operators depending on an inner urge or *élán vital*.

Fortuitously, three standard histories of biology (by

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9 *Berry, R.J.* *Neo-Darwinism*, London: Edward Arnold (1982).
technical language. We use the latter; we say the ‘sun sets’ rather than ‘the sun has now become invisible from my vantage point because the Earth has rotated so that I can no longer see the sun’. Galileo wrote about his own conviction that the Earth orbits the Sun and not vice versa, ‘the Bible teaches us how to go to heaven, not how the heavens go’, but he was pilloried by his contemporaries because ‘the earth is fixed so firm that it cannot be moved’ (Ps. 96:10; see also Ps. 19:5-6). Examples like this should make us aware of the importance of distinguishing between the text of the Bible and its interpretation. In the late nineteenth century Princeton theologian and defender of biblical inerrancy, B.B. Warfield wrote, ‘I do not think that there is any 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.’12

A crucial instance of the need for care is in interpreting the Genesis 1 account of creation as taking place in six ‘days’. As Henri Blocher13 sets out in detail, ‘day’ in the context may be legitimately interpreted as a passage of time (perhaps a geological era), as a period of revelation, as a time of reconstruction (after a period of chaos), or as a literary device to highlight the Sabbath – the ‘seventh day’. Once we accept that creation might have occurred over more than six times twenty-four hours, the extent of change in creation can be appreciated: from nothing to something, from inorganic to organic, from animals to humans. Indeed the whole of scripture is an account of change: from garden to city, from wilderness to Promised Land, from sin to salvation, from incarnation to apocalyptic. The biblical God is one who oversees change, not preserves stasis. And more: something that does not emerge in translation is that the original text uses two different words for ‘create’ or ‘make’: bara which implies a sovereign work of God with God as its subject (and which is used in this context only of the creation of material, the great monsters and humankind) while the commoner word asah is a more general word with the sense of shaping (and is used on all other occasions in the creation account).

One thing we are not told in the Bible is how God created. This is not unusual: it is rare in scripture to be told how God did any of his mighty acts, although the Bible is full of descriptions of them. However, the Bible is unequivocal that creation is God’s work (Pss. 24:2, 95:5, 148; Jn. 1:3; Col. 1:16; Heb. 1:2; Rev. 4:11) and we are told explicitly that we should understand this by faith, not because we necessarily understand all the processes involved (Heb. 11:3).

‘The words on this page can be regarded as physical entities but they are also symbols transmitting a message to whoever reads them. In a similar way we can treat the world as both God’s wonderful creation and the result of millions of years of evolution’

The best approach is to recognise that any event can be regarded as having more than one cause. Aristotle identified four: material, formal, efficient and final; we often distinguish between mechanism – how something happens, and purpose – why something happens. The words on this page can be regarded as physical entities but they are also symbols transmitting a message to whoever reads them.14

In a similar way we can treat the world as both God’s wonderful creation and the result of millions of years of evolution. We are talking about the same thing but the two explanations do not contradict each other in any way. The two explanations can be described as ‘complementary’15; it would be logically wrong to claim that any one explanation exhausts all possibilities; that is the error of doctrinaire reductionists like Richard Dawkins. God is creator. Those who believe in God are free to understand that he has used the mechanism of evolution to effect his purpose.

It is sometimes objected that evolution by natural selection is a chance process and therefore cannot be God’s work. There are two answers to this: first, that ‘chance’ is usually nothing more than a confession of ignorance. But more importantly: evolution is driven by adaptation not chance. Although we do not know all the causes of mutation (which is the ultimate basis of variation), we should not overemphasise the role of chance [mutation] in producing variation: most observed variation (which is the material for selection and therefore adaptation) is the result of recombination and not new mutation. Indeed, Simon Conway Morris has argued that the possibilities for any new variation are so restricted that evolution can almost be regarded as directed.17

Another objection is that evolution is a wasteful and cruel process, ‘red in tooth and claw’. It was a problem that troubled Darwin himself. He wrote to his friend and American protagonist, Asa Gray, Professor of Botany at Harvard, ‘I cannot persuade myself that a beneficent and omnipotent God would have designed and created the Ichneumonidae [parasitic wasps] with the express intention of their feeding within the living bodies of caterpillars.’ Notwithstanding, we have to recognise that pain is a valuable protective mechanism; and also that the Bible is clear that suffering is a route to maturity (Prov. 23:13; Rom. 5:3; Heb. 5:8). The ultimate answer for the Christian is that God has provided a way out of suffering because of Christ’s death on the Cross (1 Pet. 3:18), an atonement which affects the natural world as well as the human realm (Col. 1:20). The Bible makes it clear that creation and its methodology is God’s business, not ours (Job 38, 39). Whilst all major religions expect some form of divine judgment, there is no evidence for inevitable progress as imagined by some theologians (such as Teilhard de Chardin).18

**Human evolution?**

For religious people, the possibility of human beings evolving from ‘lower’ forms is a key reason for rejecting the whole notion of evolution. The frequently reproduced figure of a ‘grim and grotesque procession’ of ape skeletons from gibbon, orangutan, chimpanzee, gorilla to man implicitly puts humans at the summit of a progressive continuum. In contrast, Darwin himself was doubtful that we could evolve the moral traits characteristic of humanness. He wrote, ‘he who was ready to sacrifice his life, as many a savage has been, rather than betray his comrades, would often leave no offspring to inherit his noble nature... It hardly seems probable that the number of men gifted with such virtues could be increased through natural selection.’19

Half a century later, J.B.S. Haldane qualified this, pointing out that if individual unselfishness (even to the extent of self-sacrifice) had an inherited basis and (crucially) helped near relatives, then ‘altruistic genes’ could be selected and therefore spread in families. There could be situations where cooperation (or unselfishness) is an advantage to a group of individuals, even if particular individuals are disadvantaged. W.D. Hamilton formalised this argument as ‘inclusive fitness’ (or ‘kin selection’); it is now assimilated into general biology as the mechanism underlying ‘sociobiology’,21 more recently termed ‘evolutionary psychology’.

But these considerations are not critical for Christian humanness, because the distinction between humans and all other animals is that we (and only we) have the ‘image and likeness of God’ (Gen.

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15 See also Poole, M. *Reductionism: Help or Hindrance in Science and Religion?*, Faraday Paper No 6.
The idea of humankind being made in God’s image is introduced in the context of delegated responsibilities to care for the earth, involving responsibility and trustworthiness. The simplest way (although clearly not the only way) to regard the biological species Homo sapiens, descended from a primitive simian stock and related to living apes (for which the fossil and genetic evidence is very strong), is having been transformed by God at some time in history into Homo divinus, biologically unchanged but spiritually distinct.24 Genesis 1 describes the creation of humans as a bara event, a specific act of God, while Genesis 2:7 describes it as a divine in-breathing into an already existing entity. There is no reason to insist that this event took place at the same time as the emergence of H. sapiens, anatomically modern humans (which was about 200,000 years ago); Adam is portrayed in Genesis as a farmer, which would date him in Neolithic times, some time after 10,000 years ago. Adam and Eve were the spiritual progenitors of all of humankind who from that time on have had the potential to come to know God personally by faith. In this scenario and following Derek Kidner’s lead in the Tyndale Commentary on Genesis, after the creation of Homo divinus,…God may have now conferred his image on Adam’s colleagues, to bring them into the same realm of being. Adam’s ‘federal’ headship of humanity extended, if that was the case, outwards to his contemporaries as well as onwards to his offspring, and his disobedience dis inherited both alike.19

Indeed, Genesis 3 tells us that Adam and Eve disobeyed God and were banished from God’s presence. God had warned Adam and Eve that disobedience would lead to death on the ‘day’ that this happened (Gen. 2:17—the Hebrew text says ‘on the day that you eat of it…’). But they did not die physically, instead they ‘died’ spiritually by losing the close fellowship with God that they had previously enjoyed and were banished from the garden. Exclusion from the garden is a powerful symbol of alienation from God, an alienation that influenced their work and their relationships. The Apostle Paul compares the death that comes as a result of sin via Adam to all humankind and, in contrast, the new life that all can experience through Christ by the way of repentance and faith (Rom. 5:12-21; 1 Cor. 15:20-28). These passages make much more sense if we understand that the death that came to Adam refers to spiritual rather than physical death. Faith in Christ results in a spiritual rebirth, not a physical one, a point that Jesus had to make clear to Nicodemus (John 3:3-6). So if we accept that the physical evolution of human beings and their spiritual relationship to the creator are not the same thing, there is no conflict between the scientific and the Bible accounts of human origins.

Conflict? What conflict?

All members of monotheistic religions acknowledge a divine Creator. However, creationism in the usual sense of the word is effectively anti-evolutionism. Virtually all those who deny the possibility of evolution do so on religious grounds. They justify their belief because of their interpretation of the scriptures—the Bible, the Qur’an or some other holy book. Adventists, for example, are among the most fervent anti-evolutionists on the basis of the teachings of George McCready Price, who can be regarded as the founder of ‘modern’ creationism in the 1920s.26 Such opposition is based on particular interpretations; it is not intrinsic to religious belief per se.27

Anti-evolutionists support their beliefs by claiming deficiencies in either scientific data or analysis,25 often associated with imaginative extrapolations, such as that Noah’s Flood makes orthodox geological stratigraphy impossible, or that some traits cannot have evolved because they are ‘irreducibly complex’22—criticisms that were answered in principle fifty years ago by R.A. Fisher.25 A further strategy is to treat standard scientific methodology as if it were imbued with ‘philosophical naturalism’ and thereby excludes the possibility of a creator—an accusation dealt with by many authors.25 In turn, evolutionists vent their spleen on their critics, often from a dogmatically reductionist viewpoint.26 Arguably the opposite poles in debates need each other for their very existence; it has been suggested that Dawkins’ attempt to invest evolution with atheistic overtones has actually stimulated the popularity of creationism.

It is easy to become entangled in negative arguments about creation and evolution.23 There are proper scientific debates and uncertainties about the mechanism(s) causing evolution but no significant doubts about the fact that evolution has occurred and that it has taken place over many millions of years. Studying the natural world should fill us with awe and wonder (Ps. 8) but it cannot by itself lead us to a creator; we can only know God and his work through faith. When we put together faith and reason, we can join with the whole creation in praising our maker and redeemer, and rejoice in the wholeness which is the true end of humanity. We do not have to choose between evolution or creation; biblical faith leads us to affirming both.

33 e.g. Shanks, N. God, the Devil and Darwin, New York: Oxford University Press (2004).