

‘THERE IS NOTHING BUT BLIND, PITILESS INDIFFERENCE IN THE UNIVERSE:’ EVOLUTION AND DIVINE PURPOSE

Ph.D. David O. BROWN,
Queen's University Belfast,
UNITED KINGDOM,
Email: davidbrown27@me.com

ABSTRACT

Questions of theological interpretations of evolution seem to fall into two categories: those who see evolution as a part of God's purposes and those who see evolution as counter to God's purposes for creation. Invariably, these interpretations of evolution emphasise one or more commonly held aspects of evolution: either evolution is genuinely creative - so part of God's purposes - or suffering and death are inherent parts of evolution (natural selection) - so counter to God's purposes. However, drawing on Thomas Aquinas, this paper will argue that a third theological interpretation of evolution is possible in which God is neutral towards evolution, that is, it is neither creative and nor does it inherently contain suffering and death. This will lead to the suggestion that theology is at least reconcilable with evolutionary positions that emphasise its 'purposelessness,' if not that theology is more favourable to those positions.

Keywords: Evolution; Thomism; Divine Purpose; Participation; Theodicy;

INTRODUCTION

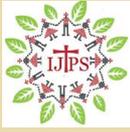
In *River Out of Eden*, Richard Dawkins writes that '[t]he universe we observe has precisely the properties we should expect if there is, at bottom, no design, no purpose, no evil and no good, nothing but blind, pitiless indifference.'¹ For Dawkins, evolution is an entirely neutral phenomenon, which serves no purpose. This is not the same as claiming that there is no progress in evolution. Dawkins affirms that one can detect a directed progress in evolution (such as the arms race), but this serves no purpose. Thus, one can have progress without purpose.² This essay is concerned with whether or not evolution serves a purpose, not whether evolution leads to biological progress. Most theologians would disagree with Dawkins here. Some argue that sentiments such as these expressed by Dawkins are philosophical luxuries,³ and not reflective of evolutionary science, which allows that evolution is creative and so consonant with divine purposes. On the other hand, others hold that evolution is destructive and so counter to divine purposes. For those, evolution is not the way that God creates, but God's act of creation must eventually overcome evolution.

Yet, there is another option that might offer greater scope for dialogue with modern biological approaches to evolution: God is neutral to whether evolution happens or not, and

¹ Richard Dawkins *River Out of Eden: A Darwinian View of Life* (London: Phoenix, 1996), p.155

² Michael Ruse *Monad to Man* (Cambridge MA.: Harvard University Press, 1996), p.21

³ See Christoph Schönborn *Chance or Purpose* (San Francisco CA: Ignatius Press, 2007), p.28; Edward Feser *Scholastic Metaphysics* (Heusenstamm: editiones scholasticae, 2014), pp.158-9



indifferent to what the ‘outcome’ of evolution might be. Perhaps overly anxious with being labelled as deist - which has made western theologians quasi-instinctively phobic of any suggestion of a denial of special providence⁴ - theologians either see evolution as being explicitly part of God’s plan for creation (and in many instances identified as the mechanism through which God realises that plan for creation) or as being explicitly counter to God’s plan for creation. God is either for or against evolution.

However, if God’s purposes are understood as something akin to the Thomistic principle of ‘willing the good’⁵ or Paul Tillich’s principle that ‘the purpose of creation is the exercise of [God’s] creativity, which has no purpose beyond itself because the divine life is essentially creative’⁶ then it is possible to hold that God is not a ‘detached and impotent God,’⁷ but yet who nevertheless does not design the world to be a specific way or achieve a specific end. That is, it is possible to hold that God wills that there is a creation and that this creation is good, without also holding that God constrains that a particular creation is good in a specific way.

In doing so, this paper will defend two ideas: (a) that creation has nothing to do with evolution - i.e. that the doctrine of creation is not the physical ‘generation’ and ‘manipulation’ of atoms in order to produce a specific arrangement or state of affairs - but is concerned with ontological dependence; and (b) that suffering, death, and destruction are not *inherent* to evolution, and so the theologian is not obliged to offer a defence/theodicy for it. Thus, against those who argue that evolution is how God creates, this paper will point to a nuanced Thomistic/scholastic account of creation in which God’s act of creation is not identified with the Big Bang and subsequent natural processes of the world. Further, against those who argue that evolution is counter to God’s purposes, this paper will show that, at least in a Darwinian/neo-Darwinian paradigm, suffering is not inherent to evolution as is so often supposed.

In defending the idea that God can be neutral to evolution this paper does not pretend to refute those theologies that argue either that God creates through evolution or that God saves creatures from evolution; it simply intends to show that a third position is possible, one in which a coherent theology can be held together with Dawkins’ claim that evolution serves no purpose. Moreover, while Dawkins was used as a way into this conversation, drawing on his characterisation of evolution as entirely ‘neutral’ and/or ‘purposeless,’ this essay will not pay any particular attention to his particular theory of evolution. Certainly, he could be seen as representative of the neo-Darwinian perspective given his profile, however, this paper is concerned with showing only that it is theologically defensible to agree with Dawkins on *this particular* issue - i.e. that evolution serves no purpose and is theologically neutral - not that one can construct a viable theology in sustained conversation with Dawkins’ work.

1. EVOLUTION IS INTENDED BY GOD

Perhaps quite obviously, those who are quite content to see evolution as entirely congruent with the divine will, the divine character, and Christian values are more likely than

⁴ See Christopher C. Knight ‘Divine Action and the Laws of Nature: An Orthodox Perspective on Miracles’, in Daniel Buxhoeveden & Gayle Woloschak *Science and the Eastern Orthodox Church*, Abingdon: Routledge (2016), p.43

⁵ *ST* 1, 19

⁶ Paul Tillich *Systematic Theology Vol. 1* (Chicago: University of Chicago Press, 1951), pp.263-4

⁷ Nicholas Saunders *Divine Action & Modern Science* (Cambridge: Cambridge University Press, 2002), p.100



not to see evolution as synonymous with creation. Evolution provides the theologian with a more scientifically sophisticated ‘gloss’ on the Genesis narrative.

The most obvious exponent of this view is Pierre Teilhard de Chardin. While a book-length treatise would be necessary to explore the many complex elements of Teilhard’s unique evolutionary theology and understand the many confusing neologisms he utilises throughout his corpus, for him, evolution is the process whereby all of creation is becoming more complex and united, eventually producing one maximally united body - the body of Christ - so that the end of evolution is coincident with the pleroma and parousia. For Teilhard, evolution is, quite simply, how God creates. Teilhard equates increased complexity with increased consciousness and, crucially, with increased ‘spirituality.’ The more complex that matter becomes, the more conscious it is and so the more spiritual, that is, the closer to God that it is. Moreover, Teilhard assumes what he calls a ‘metaphysics of union,’⁸ by which he means that ‘to be’ is ‘to be united.’ This means that creation is a process of unification. If ‘fuller being is closer union’⁹ then ‘to create is for God to unite,’¹⁰ and so ‘[t]he whole of evolution’ is ‘reduced to a process of union (communion) with God.’¹¹ Thus, he writes that ‘[we] can see only one way in which it is possible for God to create – and that is evolution, by process of unification’¹² and this means that ‘evolution is holy,’¹³ no matter how ‘material’ or ‘biological’ evolution is, it serves a spiritual purpose: unity with God.

Another important attempt to see evolution as being intended by God is made by Christopher Southgate, who argues that a process such as evolution - one that involves genuine jeopardy and suffering - is the ‘only way’ that God can cultivate those attributes and values that are most desirable: one cannot truly sacrifice if there is not genuine loss. Southgate writes that while the question of ‘[w]hy did God not create a world free from all this suffering and struggle?’ might ultimately remain beyond human knowledge, ‘a starting presumption must be that the formation of the sorts of life forms represented in the biosphere *required* an evolutionary process.’¹⁴ In this way, even though ‘[p]rocesses intrinsic to evolution give rise to harms,’ they ‘are also *instrumental* in enhancing values,’¹⁵ which means that ‘the evolutionary struggle of creation can be read as being the “travail” to which God subjected creation in hope that the values of complex life, and ultimately freely choosing creatures such as ourselves would emerge.’¹⁶ In a later essay, Southgate clarifies that one must ‘concede the disvalues associated with evolutionary suffering as a necessary element in God’s creation of an evolving biosphere’ because ‘[t]he values are not obtained without the disvalues. End of story.’ Thus, ‘a loving God would only have created in this way if it were the only way.’¹⁷ Importantly, Southgate recognises that this suffering through which God subjects creation is only temporary and so qualifies his theology by claiming that ‘I believe in God’s eventual healing of creation, and that humans have a part to play in that healing.’¹⁸

⁸ Pierre Teilhard de Chardin *The Heart of the Matter* (London: Collins, 1978), p.144

⁹ Pierre Teilhard de Chardin *The Phenomenon of Man* (New York NY: Harper & Row, 1959), p.31

¹⁰ Pierre Teilhard de Chardin *Activation of Energy* (London: Harvest, 1978), pp.262-3

¹¹ Teilhard de Chardin *The Heart of the Matter*, p.144

¹² Pierre Teilhard de Chardin *Towards the Future* (London: Harvest, 1975), p.198

¹³ Pierre Teilhard de Chardin *Writings in the Time of War* (London: Collins, 1968), p.59

¹⁴ Christopher Southgate *The Groaning of Creation* (Louisville KY: Westminster John Knox Press, 2008), p.47

¹⁵ Southgate *The Groaning of Creation*, p.44

¹⁶ Southgate *The Groaning of Creation*, p.95

¹⁷ Christopher Southgate ‘Re-Reading Genesis, John and Job: A Christian Response to Darwinism’, in *Zygon: A Journal of Religion and Science* Vol. 46 No. 2 (2011), p.388

¹⁸ Southgate *The Groaning of Creation*, p.116



Of course, Teilhard and Southgate do not exhaust theological attempts to include evolution as part of the divine purpose, normally as a way of replacing a literal reading of Genesis, and so seeing evolution as part of (if not the whole of) a doctrine of creation. No mention has been made of theologians such as John Haught,¹⁹ John Polkinghorne,²⁰ and Arthur Peacocke,²¹ who find value in theologies such as process theology, panentheism or *creatio continua* as a way of accommodating evolution in theology. Space prevents a fuller treatment of the broad range of theologies that see evolution as part of God's purposes; it is not important to discuss the various and diverse ways that theologians have attempted to show that evolution is part of God's purposes, only that it has been attempted.

2. EVOLUTION IS AGAINST GOD'S PURPOSES

While Southgate is optimistic about the presence of suffering, others argue that the 'happenstance, contingency, incredible waste, death, pain and horror' in evolution suggests a 'careless, indifferent, almost diabolical' God, certainly not 'the sort of God to whom anyone would be inclined to pray.'²² This is not the same as those, such as young earth creationists, who flatly deny that evolution is a real phenomenon (for whatever reason). Rather, exponents who fall into this category accept the reality of evolution, but see it as running counter to divine purposes in creation.

There are a number of reasons why theologians might take this position. Most often, there is an appeal to the revelation of God's character in the Bible, especially in Christ, who came for sinners, not the righteous.²³ Rik Peels (although he eventually concludes that it is possible to positively reconcile Christian theology with evolution) notes that there is a sharp tension between the Biblical image of God, who is consistently and unwaveringly pictured as siding with the small, the weak, and the poor over and against the big, the strong, and the rich,²⁴ and the Darwinian picture, which 'favours those who are well adapted and even those that are best adapted.'²⁵

Neil Messer has also recently offered an attempt to argue that evolution is counter to God's purposes. Drawing on the theology of Karl Barth, Messer writes that '[t]he fact that suffering and destruction are intrinsic to the evolutionary process in this world should be recognized as an aspect of evil, opposed to God's good purposes.'²⁶ Responding to Southgate, Messer argues that the Christian claim that creation is 'very good' should be a lens through which evolution is interpreted, and that if evolution leads to suffering - and suffering can hardly have a part in anything 'very good' - then evolution cannot be part of God's intentions.²⁷

¹⁹ John Haught *God After Darwin* (Boulder CO: Westview Press, 2000); John Haught *Making Sense of Evolution* (Louisville KY: Westminster John Knox Press, 2010)

²⁰ John Polkinghorne *Science and Creation* (London: SPCK, 1988); John Polkinghorne *Science and Providence* (London: SPCK, 1989)

²¹ Arthur Peacocke *Theology For A Scientific Age* (London: SCM Press, 1993); Arthur Peacocke *Paths from Science Towards God* (Oxford: OneWorld, 2001)

²² David Hull 'The God of the Galapagos', in *Nature Vol. 352* (1991), p.486

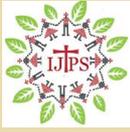
²³ Lk 5: 32

²⁴ Rik Peels 'Does Evolution Conflict with God's Character?' in *Modern Theology Vol. 34 No. 4* (2018), pp.550-1

²⁵ Peels 'Does Evolution Conflict with God's Character?', p.548

²⁶ Neil Messer 'Evolution and Theodicy: How (not) to do Science and Theology', in *Zygon: Journal of Religion and Science Vol. 53 No. 3* (2018), p.828

²⁷ Messer 'Evolution and Theodicy: How (not) to do Science and Theology', p.830



Jürgen Moltmann is perhaps the most famous exponent of this position. Reacting to what he perceives to be significant problems with Teilhard de Chardin's own evolutionary theology, Moltmann argues that Teilhard turns Christ into a saviour of the 'victors' of evolution, rather than of the 'losers.' By so fixating on the progress that Teilhard thought he saw inherent in the process of evolution, 'Teilhard does seem to have overlooked the ambiguity of evolution itself, and therefore to have paid no attention to evolution's victims.'²⁸ For Moltmann, Teilhard's Christ is not the *Christus evolutor*, but the *Christus selector*.²⁹ Christ must not be relevant only to those who win the evolutionary game, he must also be relevant - indeed, one might say *primarily* relevant - to those who lose. Christ as redeemer must primarily be that who redeems creation from the entire paradigm of evolution. Thus, Moltmann writes that 'the various processes of evolution in nature and humanity can only be brought into positive relationship to Christ, the perfecter of creation, if Christ is perceived as a victim among evolution's other victims.'³⁰ If Christ must identify with 'victims' or 'losers' of evolution, rather than the 'winners,' then evolution cannot be part of the original intentions or purposes behind creation. Moreover, Moltmann argues that identifying the new creation with natural processes seems to destroy the radicality of redemption; there is no 'meaningful hope' for the 'losers' of evolution unless 'the victims of evolution experience justice through the resurrection of nature.'³¹ Of course, there is more to Moltmann's theology of evolution than can be presented in such a short space. It has not engaged with some of Moltmann's other work, such as *God in Creation*.³² However, focusing on Moltmann's presentation of evolution in *The Way of Jesus Christ* shows most clearly how he fits into this category.

3. EVOLUTION AND GOD'S NEUTRALITY

Here then are two ways of looking at evolution: its creative ability and the inherent nature of suffering. Emphasise the former and it appears consonant with divine purpose; emphasise the latter and it appears counter to divine purpose. However, it will now be shown that another interpretation is possible. Against the first emphasis, it will be argued that theology need not equate creation with natural processes. Against the second emphasis, it will be argued that suffering is not inherent to evolution and it is possible to interpret natural selection without suffering. Thus, God can be entirely neutral towards evolution.

3.1. Selection and Suffering

Turning to the second emphasis first, ignoring questions about whether natural selection is a genuinely active evolutionary mechanism or whether it is nothing more than a statistical observation (important though they may be), many biologists have recognised that it is *reproduction* that is the central aspect, not suffering. That is, '[n]atural selection simply means this kind of differential reproduction,' which means 'saying that a certain genotype has a high fitness or is naturally selected just means that it is more successful than other

²⁸ Jürgen Moltmann *The Way of Jesus Christ* (London: SCM Press, 1990), p.294

²⁹ Moltmann *The Way of Jesus Christ*, p.294

³⁰ Moltmann *The Way of Jesus Christ*, p.296

³¹ Moltmann *The Way of Jesus Christ*, p.297; see also Denis Edwards *The God of Evolution* (Mahwah NJ: Paulist Press, 1999), p.110

³² Jürgen Moltmann *God in Creation: A New Theology of Creation and the Spirit of God* (Minneapolis MN: Fortress Press, 1993), pp.185ff.



genotypes in leaving copies of itself in succeeding generations.’³³ Jacques Monod, too, writes that ‘the decisive factor in natural selection is not the struggle for life, but – within a given species – the differential rate of reproduction.’³⁴ As some have noted, even a reproductive differential of 1% can be effective;³⁵ leaving 1% more progeny than another means evolutionary success.

Here is the crucial point. Quite often, as outlined above, theological reservations about natural selection revolve around the necessity of suffering: God could not possibly have intended something that causes so much suffering.³⁶ Yet, if natural selection is (at least, primarily) concerned with reproduction, rather than survival, then it is not clear that suffering is inherent to the evolutionary process. This does not ignore the fact that predation and death are clearly real phenomena - speed and talons would not have become ‘successful’ if they did not offer a real evolutionary advantage. Questions of predation notwithstanding, dwelling on survival - ‘red in tooth and claw’ - misses the point somewhat: it is reproduction that is the crucial factor, not survival. It does not particularly matter (evolutionarily speaking) whether the gazelle is caught by the cheetah if the gazelle has already reproduced. Certainly one can claim that a slower gazelle has fewer opportunities to reproduce than a faster gazelle (or a faster giraffe, zebra, etc.) if it is predated by the cheetah and this contributes (which it surely would) to it producing 1% fewer progeny, but this is exactly the point. It is not the survival that is evolutionarily effective, but the reproduction; the faster gazelle is not evolutionarily successful because it is faster, but because (presumably, but by no means definitely) it leaves more progeny; a slow fecund gazelle will be evolutionary more successful than a fast chaste gazelle, or, as Michael Ruse puts the same point, ‘[i]t is not good (from an evolutionary point of view) to have the physique of Tarzan if you have the sexual drive of a philosopher.’³⁷ Richard Dawkins also speculates that ‘[a] gene that is lethal in an older body,’ such as those that cause the development of cancer or senile decay, ‘may still be successful in the gene pool, provided that its lethal effect does not show itself until after the body has had time to do at least some reproducing.’ The startling implication is that it seems impossible (without conscious eugenic interventions) for age-related infirmities and even death (through decay) itself to be evolutionarily overcome because humans will always breed before they take effect.³⁸ Unless immunity to disease and decay gave any *reproductive* advantage it would never become evolutionarily successful, and since (presumably most) creatures reproduce *before* they become susceptible to age-related infirmities and death, that will never happen.

Crucially, one can hardly claim that a creature *suffers* simply by leaving slightly fewer progeny. Even if it has left fewer progeny *because* it has suffered, the fact of leaving

³³ Burton Guttman, Anthony Griffiths, David Suzuki, and Tara Cullis *Genetics* (Oxford: One World, 2002), p.258

³⁴ Jacques Monod *Chance and Necessity* (London: Collins, 1972), p.115; see also R.J. Berry *Neo-Darwinism* (London: Edward Arnold Limited, 1982), p.57; Richard Dawkins *The Blind WatchMaker* (Oxford: Oxford University Press, 1986), p.50

³⁵ Sean Carroll *Endless Forms Most Beautiful: The New Science of Evo Devo and the Making of the Animal Kingdom* (New York NY: W.W. Norton & Company, 2005), pp.245-7

³⁶ As Emily Qureshi-Hurst and Christopher T. Bennett argue, the same arguments could be used against mutations, claiming that the suggestion that God can influence particular mutations necessarily raises the question of why God does not prevent those which lead to genetic disease etc. (Emily Qureshi-Hurst & Christopher T. Bennett ‘Outstanding Issues with Robert Russell’s NIODA Concerning Quantum Biology and Theistic Evolution’, in *Zygon: Journal of Religion and Science* (forthcoming)).

³⁷ Michael Ruse *Darwin and Design: Does Evolution Have a Purpose?* (Cambridge MA: Harvard University Press, 2003), p.100

³⁸ Richard Dawkins *The Selfish Gene* (Oxford: Oxford University Press, 2006), pp.40-2



fewer progeny does not contribute to its suffering. Survival - important though it is - is only a means to an end; the longer one survives, the more progeny one has the opportunity to produce, but it is in no way the case that surviving longer *guarantees* one will leave more progeny. Looking at human populations, barriers to reproduction do not appear to be due to suffering and death (although of course many die before reaching reproductive age or have debilitating disease etc.) and, while it is of course irresponsible to extrapolate human behaviour into non-human populations, many other animal populations exhibit behaviours which afford very few opportunities to mate for many individuals (e.g. populations with an alpha male who controls access to a harem). That an individual which has very little opportunity to mate anyway suffers and/or is predated makes very little difference to reproductive differentials and so has no evolutionary significance. (Of course, the situation is vastly more complex than outlined here, but the point should be clear.)³⁹

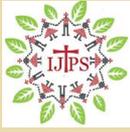
In other words, death and suffering are not an *inherent* part of evolution. They are a part of life because we live in a world in which there is limited space, limited mates, and limited resources. These limits sharpen the effects of differential reproduction, but they do not cause the differential reproduction. Even in a world with unlimited resources and unlimited space, creatures would still (presumably) potentially leave different numbers of progeny and so there would still be differing levels of fluctuating populations. This is not to say that suffering never impacts reproduction differentials, but it can only ever be a catalyst; they would still be present without suffering. One could speculate that in a hypothetical world in which there are unlimited resources and mates, it is possible that evolution would still happen - i.e. genes would still mutate - but the tension involved in competition over limited resources and mates would not be present. Evolution would still happen, but it would not necessarily lead to suffering. As Theodosius Dobzhansky writes, '[a]lthough we cannot close our eyes to competition, war, famine and death in nature, natural selection does not ineluctably depend on any of these things,' rather '[n]atural selection may also take place...when resources are not limiting, if the carriers of some genes possess greater reproductive potentials than the carriers of other genes.'⁴⁰ This is not to argue that it is possible, counterfactually, to imagine a world in which selection occurs but includes no pain or suffering, as if one could have selection without suffering but in *this* world suffering is inherent to selection,⁴¹ but to argue that suffering is incidental to selection in *all* counterfactual worlds. That is, suffering and death only affects the particular historical counterfactual path that evolutionary history might take, it in no way affects the functional or operational effectiveness of selection itself. Even if biological death were not a feature of the world we inhabit, presumably, genetic mutation would still occur and there would still be differential reproduction of those various mutations.

Of course, postulating the idea of a world without death and without limitations is a fiction. Darwin's theory of natural selection is based entirely on the fact that there *are* limitations, and, as already noted above, the presence of claws, teeth, and carnivorous digestive systems show quite clearly that predation and death are a necessary part of the evolutionary 'process.' The point that this section is ultimately trying to make is that all of this - limited resources and space, predation, death etc. - must only be a means to an end;

³⁹ Perhaps here the classic example of the Ichneumonidae (the parasitic wasp) is so forcefully relevant due to the fact that its reproductive cycle itself is so bound up with suffering. No doubt there are difficulties here, but the Ichneumonidae provides problems for many theological interpretations.

⁴⁰ Theodosius Dobzhansky *Mankind Evolving* (New Haven CT: Yale University Press, 1962), p.129

⁴¹ cf. Peels 'Does Evolution Conflict with God's Character?', pp.547-8



they are only a catalyst for a particular path. The *real* element must always be reproduction, because if there is no reproduction then what (evolutionary) use is there in winning the biological ‘arms race’? A world in which there is no suffering but no reproduction will contain no evolution, yet a world in which there is no suffering but differential reproduction will. Likewise, a world with limited resources but no reproduction will lead to no evolutionary change, but a world with unlimited resources but differential reproduction will. It is true that predation has given rise to certain values,⁴² but predation is more like the ‘steering wheel’ that guides the particular path evolution takes; it is differential reproduction that ‘propels’ it. Limited resources and suffering (predation) influences which path selection might take (and which values emerge), but without differential reproduction, that suffering is (evolutionarily) impotent. That is, the actual particular history of evolution includes suffering and limited resources, but this does not change the fact that it is reproduction that is at the heart of selection; without suffering selection would still occur, yet without reproduction selection would never occur. The point is to show that predation, death, and suffering are not inherent to evolution, but are only arbitrary features of evolution in *this particular world*. That being the case, it is reasonable to suggest that the presence of suffering in evolution is not an indication that evolution itself is against the purposes of God.

Theologians (particularly those keen on emphasising Biblical themes) might still want to retain the sense that biological death and suffering are not a (natural) part of God’s creation, and if God’s purpose is understood as being for ‘good’ then one might wish to agree with Messer that suffering and death hardly seem ‘good,’ but the point here is that, even if it is held that biological death and suffering are counter to God’s purposes, this does not oblige the theologian to oppose the presence of evolution in the world, because suffering and biological death are not inherent to evolution. Suffering and death might change what counts as ‘fitness’ - i.e. the presence of competition over resources ‘favours’ speed and sharpness of talons when lack of competition might favour something else - but it is by no means an integral part of evolution.

3.2. Mutation and Ontology

Suffering is not inherent to evolution, so evolution does not run counter to God’s purposes. Turning now to the first emphasis, it can also be shown that evolution is not creative in a theological sense, so is not consonant with God’s purposes.

Geneticists are more or less unanimous that all genetic mutations - which are the raw material of selection - can only be judged within the particular environment in which they occur. Theodosius Dobzhansky was clear that ‘classification of mutations into favourable and harmful ones is meaningless if the nature of the environment is not stated,’⁴³ which means that a particular mutation might be ‘deleterious’ or ‘destructive’ to the gene, but it might provide the organism with some advantage.⁴⁴ Other biologists agree with this assessment. Ronald Fisher writes that what constitutes ‘fitness’ or ‘evolutionary success’ is ‘qualitatively

⁴² As Christopher Southgate argues (see also Holmes Rolston III ‘Disvalues in Nature’, in *The Monist Vol. 75 No. 2* (1992))

⁴³ Theodosius Dobzhansky *Genetics and the Origin of Species* (New York NY: Columbia University Press, 1982), p.23

⁴⁴ Likewise, the comparison of the ‘adaptiveness’ of mutations can only be made ‘provided they exploit similar or overlapping adaptive niches, or compete for the same food or other resources.’ (Theodosius Dobzhansky ‘Chance and Creativity in Evolution’, in Francisco Ayala & Theodosius Dobzhansky (eds.) *Studies in the Philosophy of Biology* (London: MacMillan Press, 1974), p.322)



different for every different organism.⁴⁵ Ronald Cole-Turner, makes much the same observation, noting that as ‘the environment changes, its selection criteria will change,⁴⁶ suggesting that one cannot make objective judgements on whether a particular variation will be successful or not without information relating to the environment. Richard Dawkins even goes so far as to call it a tautology, so that ‘natural selection is defined as the survival of the fittest, and the fittest are defined as those that survive;⁴⁷ whatever survives survives because it has survived. Even Charles Darwin himself argued that, while ‘[t]here has been much discussion whether recent forms are more highly developed than ancient...naturalists have not as yet defined to each other's satisfaction what is meant by high and low forms.’⁴⁸ There is no such thing as an objectively good or bad mutation. Some mutations will provide their possessor with a reproductive advantage, but it depends on the environment in which that mutation happens; one cannot say that any particular mutation - not even that which leads to self-conscious intelligence - will always lead to progress or regress.

Perhaps even more important is the fact that which mutations occur and when they occur are entirely random and accidental. Again, Dobzhansky writes that ‘the organism is not endowed with a providential ability to respond to the requirements of the environment by producing hereditary changes consonant with these requirements’⁴⁹ and so ‘[m]utations arise regardless whether they are useful to the organism when and where they arise or ever.’⁵⁰ Not only is it not clear whether any mutation will prove costly or beneficial to the individual, but there is no causal relationship between the environment and the individual; mutations arise whether the individual ‘needs’ them or not.

Of course, increasingly, biologists are reacting against this ‘statistical’ Modern Synthesis typified by Dobzhansky. Peter Corning gives expression to the ‘growing constituency among biologists and other evolutionary theorists these days’ that the Modern Synthesis is becoming outdated and that biology now ‘goes far beyond and sometimes even contradicts’ that Modern Synthesis.⁵¹ Eva Jablonka and Gal Raz also speak for many biologists in the twenty-first century when they write that ‘it seems that a new extended theory, informed by developmental studies and epigenetic inheritance, and incorporating Darwinian, Lamarckian, and saltational frameworks, is going to replace the Modern Synthesis version of evolution.’⁵² That is, if Dobzhansky and the Modern Synthesists felt evolution was random and accidental, Jablonka and her colleagues feel that they might very well be some discernible direction to evolution.

Following this, theologians might argue that consciousness or self-consciousness should be given pride of place, as does Teilhard de Chardin, who believes ‘it is better, no matter what the cost, to be more conscious than less conscious’ and so makes consciousness

⁴⁵ Ronald Fisher *The Genetical Theory of Natural Selection* (Oxford: Oxford University Press, 1930), p.37

⁴⁶ Ronald Cole-Turner *The New Genesis: Theology and the Genetic Revolution* (Louisville KY: Westminster/John Knox Press, 1993), p.43

⁴⁷ Richard Dawkins *The Extended Phenotype* (Oxford: Oxford University Press, 1999), p.181

⁴⁸ Charles Darwin *Origin of Species* (London: Penguin Classics, 2009), p.297

⁴⁹ Dobzhansky *Genetics and the Origin of Species*, p.120

⁵⁰ Dobzhansky *Mankind Evolving*, p.47; see also Theodosius Dobzhansky *Biology of Ultimate Concern* (London: Rapp and Whiting, 1969), p.41

⁵¹ Peter Corning ‘Beyond the modern synthesis: A framework for a more inclusive biological synthesis’, in *Progress in Biophysics and Molecular Biology Vol. 153* (2020), p.5

⁵² Eva Jablonka & Gal Raz ‘Transgenerational Epigenetic Inheritance: Prevalence, Mechanisms, and Implications for the Study of Heredity and Evolution’, in *The Quarterly Review of Biology Vol. 84 No. 2* (2009), p.168



‘the absolute condition of the world’s existence.’⁵³ Thus, *contra* the biologists just quoted, theologians might agree on what constitutes a good mutation. Mariusz Tabaczek, while not explicitly pointing to consciousness, seems to accept something similar. Tabaczek is careful to distinguish between ‘species’ and ‘essence,’ so that ‘metaphysical categories of “higher” and “lower” should not be equated with biological concepts describing organisms as “more complex” and “better adapted.”’⁵⁴ However, this, Tabaczek clarifies, means that the theologian is not obliged to argue that an ant (as an example of a creature that is clearly evolutionarily successful) is on the same metaphysical footing as Neanderthals (as an example of an evolutionary unsuccessful creature).⁵⁵ In other words, Tabaczek argues, just because a creature is evolutionarily well-adapted does not mean that it is metaphysically superior. While biologists might bicker over what (if anything) is ‘meant by high and low forms,’ theologians are adamant.

However, it is not entirely clear that theologians are bound to argue that anything (including consciousness) makes creatures metaphysically superior. Perhaps more prevalent in eastern theology, there is a tendency among some to emphasise humanity’s solidarity with the rest of creation, rather than argue for its superiority. Andrew Louth, drawing on Gregory Nazianzen, writes that ‘nothing is nearer or further away from God by virtue of the constitution of its being...the most exalted archangel is, in metaphysical terms, no closer to God than a stone: God transcends all creatures infinitely.’⁵⁶ Pseudo-Dionysius also held a similar view. While he is perhaps remembered mostly for his theology of hierarchy, it is often not emphasised enough that, for him, ‘divinization occurs in the hierarchy not by moving up the hierarchy...but rather existing in one’s hierarchic rank...in a divinely ordained and divinely communicative way in relation to others.’⁵⁷ Thus, Pseudo-Dionysius writes that, while all creatures ‘yearn’ for God, ‘[e]verything with mind and reason seeks to know [God], everything sentient yearns to perceive [God], everything lacking perception has a living and instinctive longing for [God], and everything lifeless and merely existent turns, in its own fashion, for a share of [God]’⁵⁸ That is, the difference between ‘everything with mind and reason’ and ‘everything lifeless’ is simply the way in which they yearn for God; there is no suggestion that one is inherently ‘better’ than the other. In other words, it is impossible for a human (who seeks God through ‘mind and reason’) to be closer to God (who ‘transcends all creatures infinitely’) than a tree (who ‘only’ seeks God through ‘instinctive longing’). What is important is that the individual fulfills their ‘role,’ not that one moves through the hierarchy. Perhaps somewhat counter-intuitively, the theologian in the Dionysian vein has more in common with ‘statistical’ Modern Synthesis; there is no biological mutation which makes any creature metaphysically better.

⁵³ Pierre Teilhard de Chardin *Christianity and Evolution* (London: Harvest, 1971), p.108

⁵⁴ Mariusz Tabaczek ‘An Aristotelian Account of Evolution and the Contemporary Philosophy of Biology’, in *Dialogo Vol. 1 No. 1* (2014), p.60

⁵⁵ Biologists and evolutionary historians may want to question whether Neanderthal’s should rightly be considered ‘unsuccessful.’ I take it that their extinction is evidence that, as successful as they may have been, they are no longer. While I accept there may be disagreements here, the purpose in using them as an example is to contrast them with ants as an extinct but, presumably for Tabaczek, ‘metaphysically’ superior creature.

⁵⁶ Andrew Louth ‘The Cosmic Vision of Saint Maximos the Confessor’, in Philip Clayton & Arthur Peacocke (eds.) *In Whom We Live and Move and Have Our Being* (Grand Rapids MI: William B. Eerdmans, 2004), p.191

⁵⁷ Ashely Purpura *God, Hierarchy, and Power: Orthodox Theologies of Authority from Byzantium* (New York NY.: Fordham University Press, 2018), pp.29-30; see also Louise Nelstrop *Christian Mysticism* (Surrey: Ashgate, 2009), p.109

⁵⁸ Pseudo-Dionysius, *The Complete Works* (Mahwah NJ: Paulist Press, 1987), DN 4.4.



Herein lies the problem with Tabaczek's claim that humanity is metaphysically superior to ants. Important though it might be to distinguish metaphysical categories from biological concepts, if it is undeniable that consciousness and self-consciousness are *biological* concepts - i.e. they emerged through evolution (as many biologists and theologians would agree, although some - such as Teilhard de Chardin - might question) - then separating biological concepts from metaphysical categories prevents consciousness from being a marker of metaphysical superiority. One cannot claim both that the metaphysical is separate from biology and then select biological pointers to distinguish metaphysically. Rather, all creatures are metaphysically equal regardless of whatever biological concepts describe/distinguish them. Self-consciousness is just one evolutionary successful 'strategy,' it is by no means superior.

Perhaps, alternatively, human superiority could be found in 'the capacity to seek a relationship with the personal creator God,'⁵⁹ but, again, there is a sense in which explaining humanity's capacity for relationship with God consists of postulating the presence of a number of biological concepts (e.g. consciousness, lateral thinking, language, memory, morality), which are also found in other, non-human creatures.⁶⁰ Perhaps one could point to the presence of a soul uniquely in humanity (as does Tabaczek),⁶¹ which God creates directly and immediately and infuses into a human body at birth (or conception).⁶² Yet, there are problems here. Certainly, the appeal to the presence of a soul in the anthropological dualist/Cartesian sense is unhelpful, in which case one is forced to argue for something akin to soul as 'emergent personality,' that the soul is 'engendered by the experiences of *personal relatedness*,' which in turn is 'an emergent property of certain critical *human cognitive capacities*.'⁶³ Yet, here one is forced into the same admission: that there is no *human* capacity that is not possessed by other non-human creatures. Warren Brown seems to recognise this when he almost immediately undermines his argument for the soul as 'emergent personality' by claiming that, ultimately, relationship 'would be up to God to determine,' so that 'God may also relate to whom he [sic] chooses within his current creation, allowing for one form of relatedness that is not dependent on human capacity.'⁶⁴ If the possession of a soul does not

⁵⁹ Paul Rosenblum 'Seeking Purpose in Creation and Evolution: The Agapic Principle', in *Theology and Science Vol. 18 No. 1* (2020), p.88

⁶⁰ As Ron Cole-Turner has argued, recent biological and anthropological evidence confirms that *Homo Sapiens* did not come into existence either biologically or genetically, 'with any sort of abruptness' and neither is there a comparable 'cultural Big Bang' or 'sudden lights-on moment' of culture (e.g. art, music, religion etc.), lending more support to the Darwinian accumulation thesis (Ron Cole-Turner 'New Perspectives on Human Origins: Three Challenges for Christian Theology', *Theology and Science Vol. 18 No. 4* (2020), p.530). Perhaps more pertinent is that this leads Cole-Turner to acknowledge that the theological claim of human uniqueness 'continues to lose its meaning and coherence' (Cole-Turner 'New Perspectives on Human Origins: Three Challenges for Christian Theology', p.531; see also Lucas Mix & Joanna Masel 'Chance, Purpose, and Progress in Evolution and Christianity', in *Evolution Vol. 68 No. 8* (2014), p.2444).

⁶¹ Mariusz Tabaczek 'The Metaphysics of Evolution: From Aquinas's Interpretation of Augustine's Concept of Rationes Seminales to the Contemporary Thomistic Account of Species Transformism', in *Nova et vetera Vol. 18 No. 3* (2020), p.971

⁶² *Humani Generis*, 36; See Christopher Haw 'The Human Soul and Evolution: A Mimetic Perspective', in *New Blackfriars Vol. 102 No. 1097* (2021)

⁶³ Warren Brown 'Cognitive Contributions to Soul', in Warren Brown, Nancey Murphy & H. Newton Malony (eds.) *Whatever Happened to the Soul: Scientific and Theological Portraits of Human Nature* (Minneapolis MN: Augsburg Fortress Press, 1998), p.103

⁶⁴ Brown 'Cognitive Contributions to Soul', p.123



bestow on humanity a unique ability to be in relationship with God, what purpose does it serve?

Thus, referring back to Tabaczek's distinguishing of metaphysical categories from biological concepts and Pseudo-Dionysius' hierarchy, it is unacceptably anthropocentric to suppose that only humans can have relationship with God - the purpose behind creation according to Tillich - because only they are self-conscious. Self-consciousness might be one way to be in relationship with God, but it is reminiscent of the labourers who complained of being paid the same wage to ask why God should consider relationship with unconscious trees equal to relationship with self-conscious humans; Thomas Merton's tree, who 'imitates God by being a tree,'⁶⁵ becomes the widow's mite that is looked down upon by the 'riches' of humanity, but favourably appreciated by God.

Readers might counter that the absence of a particular unique capacity in humanity does not rule out uniqueness, and that the degree to which humanity experiences self-consciousness and symbolic language can lead to a unique role of humanity among other creatures, a role that might be described as 'caretaker.' This is undoubtedly important. It is undeniable that, however much humanity shares capacities and attributes with other creatures, they have manipulated their world in ways that no other animal has been able or could be able. Yet, the point here is not to deny that there is something (biologically) unique about humanity or that they contribute something valuable that would be lacking without them, but it is to deny that whatever uniqueness or value they do possess *does not equate to ontological superiority*. Brown's admission that whether or not humanity possesses a soul or 'emergent personality' 'God may also relate to whom he [sic] chooses within his current creation, allowing for one form of relatedness that is not dependent on human capacity'⁶⁶ is exactly the point here: self-consciousness does not confer ontological superiority if God can and does relate to all creatures. The point is not to deny human *uniqueness*, but to deny human *superiority*; it is not that there is nothing biologically unique about humanity, but that any such *biological* uniqueness cannot point to *metaphysical* superiority.

Here, then, is where it can be shown that a proper appreciation of Thomistic/scholastic accounts of creation create problems for seeing evolution as coincident with divine creation. Simply, to understand that God uses natural processes to create - that God works in, with, and through natural process as panentheists might put it⁶⁷ - is to confuse 'creation' with 'generation.'⁶⁸ As Tabaczek has already been criticised, one cannot acknowledge that metaphysical categories are distinct from biological concepts and then suggest that one creature is metaphysically superior because of its biological constitution.

It is impossible to expound Thomas Aquinas' doctrine of creation in such little space. Whole books have been dedicated to the subject.⁶⁹ This paper will limit itself to a few comments. Thomas Aquinas distinguishes between *creatio* and *mutatio* (and, specifically for the purposes of this paper, *generatio*, which is a type of *mutatio*). While *mutatio* and

⁶⁵ Thomas Merton *New Seeds of Contemplation* (London: Burns & Oates, 1961), p.30 ; cf. Rosenblum 'Seeking Purpose in Creation and Evolution: The Agapic Principle', p.93

⁶⁶ Brown 'Cognitive Contributions to Soul', p.123

⁶⁷ e.g. Paul Davies 'Teleology without Teleology: Purpose Through Emergent Complexity', in Philip Clayton & Arthur Peacocke (eds.) *In Whom We Live and Move and Have Our Being: Panentheistic Reflections on God's Presence in a Scientific World* (Grand Rapids MI: William B. Eerdmans Publishing Company, 2004), p.99

⁶⁸ Andrzej Maryniarczyk 'Philosophical Creationism: Thomas Aquinas' Metaphysics of *Creatio ex Nihilo*', in *Studia Gilsoniana Vol. 5 No. 1* (2016), p.238

⁶⁹ For the most recent, see Gavin Kerr *Aquinas and the Metaphysics of Creation* (Oxford: Oxford University Press, 2019)



generatio might be ‘creative’ in a certain sense, they are not *creatio*, which is something entirely different.⁷⁰ Describing this distinction, Étienne Gilson writes that, Thomas Aquinas’ teacher ‘Albert the Great emphatically stressed the distinction of two types of causality corresponding to two different types of effects produced.’ These can be described thusly:

The first is a change properly speaking, that is to say, a change of state. Every change of this kind is the effect of a movement, whether we are dealing with the production of a new quality in an already existing substance, or of that of a new substance starting from already existing matter, the instrument of production is a moment, and the cause is the point of departure or the point of origin of this movement. That kind of production must be distinguished from the one whose result is the very being of the effect produced.⁷¹

As a result, Aquinas understands that *creatio* is not part of the causal nexus, but is the bringing into being of that nexus: ‘what infinite agency causes simply is the system of secondary causality.’⁷² This leads Aquinas to claim that it is entirely possible for there to be an infinite regress of changes leading into the past. According to Aquinas, the universe can be eternal (i.e. have infinite temporal duration) and created;⁷³ *creatio* is not the first *mutatio*. Gavin Kerr describes this argument as a distinction between ‘beginning’ and ‘creation.’ He writes that ‘[t]he beginning of a thing signifies the time at which it came into existence, but the creation of a thing signifies the mode of its coming into existence.’⁷⁴ Thus, Kerr continues, it is quite possible to have a creation without a beginning, but it is impossible to have a beginning without a creation. *Creatio* is not about how something ‘comes into being’ - that is *generatio* - but about the dependence on God for being. Gilson, quoted above, also explicitly acknowledged that *generatio* is ‘the point of origin of movement,’ and distinguished this from what is meant by *creatio*. Thus, Andrew Davison can write that *creatio ex nihilo* is not ‘some putative first moment in the past’ but is ‘primarily about derivation of all things from God.’⁷⁵ To put it bluntly, ‘God’s creative action *just is* creation’s dependence on God for its existence;’⁷⁶ creation is not an ‘act’ or ‘event’ (however, long that act endures or however often it is repeated, as with modern exponents of *creatio continua*),⁷⁷ but a relationship of dependence, that is, participation.

Others make the same distinction using different language. Caleb Cohoe describes this tension as between ‘vertical’ and ‘horizontal’ relations,⁷⁸ indicating that *creatio* is not understood in what might be called a ‘mechanical’ sense, but in a ‘hierarchical’ sense. Others have also made use of this ‘vertical’ imagery. Philip Sherrard writes that ‘[t]o speak of what is “prior” to creation is not, therefore, to refer to a time that precedes creation...It is to refer to the ontological and pre-ontological realms of the divine that stand, in a vertical hierarchy,

⁷⁰ *Summa Contra Gentiles* 2. 17; see also Maryniarczyk ‘Philosophical Creationism: Thomas Aquinas’ Metaphysics of *Creatio ex Nihilo*’, p.238

⁷¹ Étienne Gilson *Medieval Essays* (Eugene OR: Cascade Books, 2011), p.156

⁷² Rowan Williams *Christ: The Heart of Creation* (London: Bloomsbury Continuum 2018), p.5

⁷³ Thomas Aquinas *De Aeternitate Mundi*, in Thomas Gilby (trans.) *Philosophical Texts* (Durham NC: The Labyrinth Press, 1982), pp.142-7; See Gilson *Medieval Essays*, p.170

⁷⁴ Gavin Kerr ‘A Thomistic metaphysics of creation’, in *Religious Studies* Vol. 48 (2012), p.340

⁷⁵ Andrew Davison *Participation in God* (Cambridge: Cambridge University Press, 2019), p.26

⁷⁶ John Bishop & Ken Perszyk ‘The Divine Attributes and Non-personal Conceptions of God’, in *Topoi* Vol.36 (2017), p.614

⁷⁷ e.g. John Haught, John Polkinghorne, and Arthur Peacocke

⁷⁸ Caleb Cohoe, ‘There must be a First: Why Thomas Aquinas Rejects Infinite, Essentially Ordered, Causal Series’, in *British Journal for the History of Philosophy* Vol. 21 No. 5 (2013), p.841



prior to the realm of creation.⁷⁹ Here, perhaps the word ‘primary’ is better than ‘prior;’ God’s activity is not ‘prior’ to creation, but more ‘primary.’ The point is that creation is a metaphysical category (unrelated to time and space), and so has nothing to do with historical - including biological - changes, whether those changes are progressive or not. Crucially, Torstein Tollefsen explicitly relates this notion of ‘vertical’ causality to Pseudo-Dionysius, writing that ‘all causes...are...vertically dependent on God as the final..., efficient..., and paradigmatic...principle or source.’⁸⁰ The link with Pseudo-Dionysius helpfully connects this discussion with that above: metaphysically, all are equal - biological changes do not affect metaphysical valuation.

Here, then, is the crucial point: precisely because evolution is about ‘the production of a new quality in an already existing substance, or of that of a new substance starting from already existing matter,’⁸¹ so evolution can only ever be a series of *mutatio* or *generatio* and can never be about *creatio*. Thus, returning to Tabaczek’s helpful caution to distinguish metaphysical categories from biological concepts, it can now be claimed that creation is concerned *only* with the former; whatever biological ‘progress’ might happen is properly only *mutatio*, and so is of no consequence to *creatio*.

Of course, Tabaczek, as a Thomist, accepts this distinction between ‘*creatio*’ and ‘*generatio*,’⁸² but he also claims that creation happens *through* evolution, implying that he does not see them as being mutually exclusive, but as being complementary. *Creatio*, for Tabaczek (and other Thomists), happens through *mutatio*. In other words, it seems that Tabaczek sees *mutatio* and/or *generatio* as a ‘type’ of *creatio*, or sees *mutatio* and/or *generatio* as producing the ‘same type of effect’ (as Gilson would put it). It appears, then, that Tabaczek sees *creatio* as the bringing about new/better aggregations of atoms, rather than ‘the investigation of the dependence of all that is on God,’ that is, ‘dependence in the order of being.’⁸³

Again, this does not mean that *mutatio* cannot be creative in a certain sense, but it is not what the theologian means by divine creation. Tabaczek seems to assume that *creatio* is a temporal process that starts in the beginning and culminates in humanity,⁸⁴ rather than an atemporal hierarchy of ontological dependence. Tabaczek still situates himself in the first category - evolution is creative in a theological sense - and sees creation as physical construction, not ontological investigation. If creation genuinely is about ontological dependence as distinct from any change that happens in the world, then it is clear that evolution cannot be *creatio*. If metaphysical categories are to be distinguished from biological concepts, as Tabaczek claims, then it seems difficult, as just expounded, to also

⁷⁹ Philip Sherrard *Christianity: Lineaments of a Sacred Tradition* (Edinburgh: T&T Clark, 1998), p.239; See also Andrew Davison ‘Looking Back Towards the Origin: Scientific Cosmology as Creation *ex nihilo* Considered “From the Inside”’, in Gary A. Anderson & Markus Bockmuehl (eds.) *Creation Ex Nihilo: Origins, Development, Contemporary Challenges* (Notre Dame IL.: University of Notre Dame Press, 2018), p.371ff.

⁸⁰ Torstein Theodor Tollefsen *Activity and Participation in Late Antique and Early Christian Thought* (Oxford: Oxford University Press, 2012), p.113

⁸¹ Gilson *Medieval Essays*, p.156

⁸² e.g. Mariusz Tabaczek ‘What Do God and Creatures Really Do in an Evolutionary Change? Causal Analysis of Biological Transformism from the Thomistic Perspective’, in *American Catholic Philosophical Quarterly* Vol. 93 No. 3 (2019), p.23

⁸³ Steven Baldner & William Carroll (trans.) *Aquinas on Creation* (Toronto: Pontifical Institute of Mediaeval Studies, 1997), p.4

⁸⁴ e.g. Tabaczek ‘What Do God and Creatures Really Do in an Evolutionary Change? Causal Analysis of Biological Transformism from the Thomistic Perspective’, p.17, p.37; thus, if Gavin Kerr is correct to separate ‘creation’ and ‘origins,’ then Tabaczek seems to confuse them.



claim that biological concepts are the source of one's metaphysical valuation; it seems difficult to hold that metaphysical progress is achieved through biological changes.

Put differently, if divine purpose is about intending good - and this is understood in a metaphysical sense - then, biological improvement (if there is any) has no bearing on increasing metaphysical good. '[A]ll created natures are just ways of imperfectly imitating God;⁸⁵ if God 'transcends all creatures infinitely' (or, if 'between creator and creature there can be noted no similarity so great that a greater dissimilarity cannot be seen between them,⁸⁶ as Lateran IV put it) then humanity imitates God just as imperfectly as a tree - that one is conscious is incidental and does not make it a 'better' imitation.

3.3. Ontogeny and Phylogeny

Drawing on this distinction, and particularly Pseudo-Dionysius' hierarchy in which the point is to fulfill one's role not progress through the hierarchy, then the point here is that God can be entirely concerned with the *personal* or 'spiritual' fulfillment of each and every creature, without constraining how many progeny they leave, or whether one changes into the other. Or, while there is obviously not a 'one-to-one' coincidence between the two (i.e. what biologists means by ontogeny is not exactly what is meant here as 'vertical' or 'hierarchical' fulfillment), God is concerned with ontogeny, not phylogeny. God is not concerned with historical and/or biological progress, but with the metaphysical 'fulfillment' of each creature, and biological concepts have no bearing on it. Consciousness does not mean that humanity has an advantage in metaphysical 'fulfillment,' it only means that they achieve that in a different way to a tree, who 'imitates God by being a tree.'⁸⁷ Humans achieve metaphysical fulfillment through 'mind and reason,' trees through 'instinctive longing,'⁸⁸ but one is not better than the other.

This leads to the conclusion that evolution is theologically irrelevant. Arguing that God is indifferent to evolution is ultimately to claim that God is indifferent to whether an organism's progeny has a specific mutation that improves their ability to leave more progeny or whether they have any progeny at all.⁸⁹ This is very different to saying that God is indifferent to the 'personal' or 'spiritual' fulfillment of those organisms. In biological language, claiming that God is indifferent to phylogeny does not mean that God is indifferent to ontogeny. To say that God desires and wills for each creature to fulfill themselves 'ontogenetically' in no way implies that God has 'phylogenetic purposes.' This could be put differently: '*what* I am' is irrelevant to God,⁹⁰ '*that* I fulfill it' is. Alfred Freddoso seems to support this distinction between '*that* something is' and '*what* something is.' In his

⁸⁵ Marilyn McCord Adams *What Sort of Nature? Medieval Philosophy and the Systematics of Christology* (Milwaukee WI: Marquette University Press, 1999), p.29; see also Mark Jordan 'The Intelligibility of the World and the Divine Ideas in Aquinas', in *The Review of Metaphysics Vol. 38 No. 1* (1984), pp.20-1; Junius Johnson 'The One and the Many in Bonaventure Exemplarity Explained', in *Religions Vol. 7 No. 144* (2016), p.12; Joshua C. Benson 'Structure and Meaning in St. Bonaventure's "*Quaestiones Disputatae de Scientia Christi*"', in *Franciscan Studies Vo. 62* (2004), p.74

⁸⁶ Constitutions of the Fourth Lateran Council, 2

⁸⁷ Merton *New Seeds of Contemplation*, p.30

⁸⁸ Pseudo-Dionysius, *The Complete Works*, DN 4.4.

⁸⁹ Although God does enjoin Noah at least to 'be fruitful and multiply, abound on the earth and multiply in it' (Gen 9:7).

⁹⁰ There are different 'what I am's because, not being God, creatures are susceptible to difference and so there are different ways of participating or imitating God, but, if Tabaczek is right, then none of these different 'what I am's leads to a greater participation or closer imitation. That is, 'what' something is cannot mean 'that' it is greater or better.



introduction to the theology of Francisco Suarez, he writes that ‘a newly conceived armadillo is from God insofar as it is something rather than nothing and from its parents insofar as it is an animal of the specious *armadillo* rather than some other sort of effect.’⁹¹ There is clearly the same distinction between metaphysics and biology. *What* an armadillo is, what its biological make-up is, is incidental to the fact *that* it is. The latter is *creatio* and the former is *mutatio/generatio*. Moreover, the former does not impinge upon the latter, by which is meant that *what* something is does not mean *that* it is to a greater or deeper extent; one cannot be more or less created on the basis of *what* it is. If ‘nothing is nearer or further away from God by virtue of the constitution of its being’⁹² then evolution simply explains how humans are different from other creatures (through accumulation of minor, insignificant *changes*), it does not mean that humans are more *created* than others. In other words, *creatio* is an absolute - one is either created or not - whereas *mutatio* is gradated - one can have more or fewer ‘changes’ - and therefore, the number of changes that one goes through - ‘*what* something is’ - can have no impact on whether one is more or less created - ‘*that* something is’ - because something can only be created or not, it cannot be more or less created. One is either created or not, one cannot be *more* created because of a particular biological form.⁹³

Ruth Page offers a similar interpretation. She writes that evolution and history are not divinely designed,⁹⁴ and so God does not ‘[set] up the initial conditions with the express design to produce complexity and human consciousness,’ but God ‘[lets] be whatever would and could emerge from that freedom, and enjoy[s] *all* responses of *all* kinds as they have occurred from the beginning of time, with their various qualities, of which intelligence is only one.’⁹⁵ It is crucial that Page explicitly notes that intelligence is only one way of responding to God, it is not better than any other. Seen through the Dionysian lens, God is not interested in what creatures are, or how many progeny they leave, but that they fulfill their relationship with God, whatever that relationship might look like. Each individual creature, whether they be human or tree, wherever they appear on the ‘hierarchy of being,’ can ‘respond’ to God and achieve spiritual fulfillment. (Again, anyone who complains that (self-)consciousness is required for ‘responding,’ excluding a tree from relationship with God, is like the labourer who complains of another being paid the same wage for ‘less work;’

⁹¹ Alfred Freddoso ‘Introduction’, in Francisco Suarez *On Creation, Conservation, and Concurrence* (Indiana: St. Augustine’s Press, 2002), p.lxxxviii

⁹² Andrew Louth ‘The Cosmic Vision of Saint Maximos the Confessor’, in Philip Clayton & Arthur Peacocke (eds.) *In Whom We Live and Move and Have Our Being* (Grand Rapids MI: William B. Eerdmans, 2004), p.191

⁹³ The reader might argue that, of course, there are instances where ‘being’ is not absolute, where ‘being’ is gradated, and it is precisely ‘*what* something is’ that determines ‘*that* something is’ more and/or to a greater extent, namely, God. God, as the creator, must ‘be’ to a greater extent than creatures because God has ‘being’ necessarily and fully, whereas creatures only participate in being, and so having it derivatively and less fully. However, this is an incorrect understanding of participation. God does not ‘have being’ - that would make God another individual being to whom certain things can be attributed. To paraphrase Erich Przywara, this would make ‘being’ a ‘third thing’ (Erich Przywara *Analogia Entis* (Grand Rapids MI: William B. Eerdmans, 2014), p.233) that exists alongside both God and creatures and so both God and creatures participate in ‘being.’ In other words, this would lead to the univocality of being. God is not another being, another individual who has ‘being’ to a greater extent or degree; God *is* being, God is the ground of being, in which creatures participate in order to have ‘being.’ As Pseudo-Dionysius writes, God ‘falls neither within the predicate of nonbeing nor of being’ and ‘is beyond assertion and denial’ (Pseudo-Dionysius *The Mystical Theology*, 5); God neither ‘is’ nor ‘is not,’

⁹⁴ Ruth Page *The Web of Creation* (London: SCM Press, 1996), p.8

⁹⁵ Page *The Web of Creation*, p.80



the tree's 'biological inferiority' is like the widow's mite.) Humans are not *better* at imitating God than trees; they are just different ways of imitating God.

John C. Green also hints at such a conclusion when he asks, in a letter to Dobzhansky, 'why should we regard the modern horse as better than Eohippus?' and answers that 'I would think that the two creatures were equally happy and equally valuable in God's sight,' reasoning that "[b]etter" in evolutionary lingo is somewhat like "better" in modern advertising - the indefinite comparative. Our product is "better." Better than what? Better for whom?'⁹⁶ Evolution cannot be better for the Eohippus, who is not around long enough to benefit from it, but neither can it be better for God, who '[lets] be whatever would and could emerge from that freedom, and enjoy[s] *all* responses of *all* kinds.'

In this way, even if it were conclusively proven beyond all doubt that there is real genuine biological direction and progress in evolution, or that there are certain and/or particular mutations that are objectively biologically more valuable, this would not change the doctrine of creation because none of these things have anything to do with what the theologian means by creation. The point of this essay is not to refute the *biological* claim that evolution can be viewed as exhibiting direction (in whatever way that is understood), but that, if creation is understood *theologically* not as 'the title of a story' but as 'the classical formula which expresses the *relation* between God and the world,'⁹⁷ then it is irrelevant whether evolution is directed or not. Michael Ruse hints at this conclusion. He writes that '[w]e have forgotten our Plato: purpose occurs when *values* are at stake.'⁹⁸ if God does not place any particular value in *what* the creature is - if God enjoys all responses of all kinds - then God does not need to place any purpose in evolution. If God enjoys all responses, and places no value on any particular response, then the apparent randomness and chance in Darwinism no longer presents the theologian with a problem. To put that differently, if the theologian is not obliged to see any greater value in humanity (because their biological apparatus does not afford them any metaphysical superiority), then the theologian has no need to see evolution directed towards a particular outcome, least of all an evolutionary process constrained by God.

It is pertinent that Southgate criticises Page. While he acknowledges that there are 'many points of contact between Page's thought and the view presented [in his book],' Southgate is ultimately critical of Page because he feels that 'she never avoids the ontological aspect of the problem: God still bears responsibility for all that to which God has given rise.'⁹⁹ In other words, for all Page is applauded for removing God from 'using pain, suffering, death, and extinction to realize other ends,' ultimately God must still be responsible 'for the existence of the world in which the suffering takes place.'¹⁰⁰ Indeed, it is the fact that God is ultimately responsible for the existence of the world in which suffering takes place that leads Southgate to argue that God must 'use' it in some way to ensure that certain values are cultivated. However, while Southgate's criticisms of Page might be valid, the point here is that Southgate is only interested in 'phylogenetic fulfillment.' For Southgate, suffering leads to fulfillment in a *future reality*. That is why he is critical of 'Page's rigorous

⁹⁶ John C. Greene & Michael Ruse 'On the Nature of the Evolutionary Process: The Correspondence between Theodosius Dobzhansky and John C. Greene', in *Biology and Philosophy Vol. 11* (1996), p.460

⁹⁷ Tillich *Systematic Theology Vol. 1*, p.254 (*italics added*)

⁹⁸ Michael Ruse *Darwin and Design: Does Evolution Have a Purpose* (Cambridge MA: Harvard University Press, 2003), p.264 (*italics in original*)

⁹⁹ Southgate *The Groaning of Creation*, p.49

¹⁰⁰ Southgate *The Groaning of Creation*, p.70



rejection of long-term divine ends' and questions whether 'freedom of natural processes *is* a good, in the absence of divine goals.'¹⁰¹ Yet, for Page and Green (and for this essay), that fulfillment must be 'ontogenetic' or it cannot really be fulfillment at all. Put differently, if 'the purpose of creation is the exercise of [God's] creativity, which has no purpose beyond itself because the divine life is essentially creative'¹⁰² then the fulfillment of that creation is simply to be in relation with God, not for a specific aggregation of atoms or state of affairs to occur. Or, differently still, if creation is about ontological dependency and participation, then divine purpose must be concerned with the participation of all creatures in God (which has 'no reference to temporality'¹⁰³), not 'long-term' - i.e., future - goals. This might lead to the suggestion that God is 'essentially irrelevant to the actual physical workings of th[e] universe,'¹⁰⁴ but so be it.

Thus, if creation is about participation in God, which is a 'metaphysical investigation' and has 'no reference to temporality,' then purpose in creation must be about fulfillment of participation in God not the realisation of a specific state of affairs. That is, divine purpose in creation must be ontological, not historical. Of course, the *experience* of participation must be spatial and temporal/historical *for creatures*, otherwise it cannot be a genuine creaturely experience, but it is very different to say that the *experience* of participation is historical *for creatures* but atemporal *for God* than it is to say that God has specific desires that God acts to realise *in and through* history (i.e., through evolution).

If this is the case, then the theologian can find more common ground with Richard Dawkins than might first be thought possible. From a phylogenetic point of view, evolution is purposeless; God's purpose is ontogenetically experienced - it is the fulfillment of each individual, not the fulfillment of history. Evolution becomes, then, not a process utilised by God to create, nor an unnatural or alien condition forced upon creation as a result of the introduction of evil (and certainly not a dualist force operating in creation to thwart God's intentions), but the neutral 'accidental' or 'incidental' *effect* of difference. In this way, evolution is neither *creative* (understood theologically) nor *destructive*, but 'neutral' in the sense that it serves no theological purpose.

4. A BIBLICAL REACTION

There might be some who see what is speculatively put forward in this paper as lacking in consideration of Biblical themes. By overplaying the sharp distinction between *creatio* and *mutatio*, one seems to be moving towards seeing the relationship between science and religion as NOMA, and/or of flirting with deism and so ignoring the God presented in the Bible, who interacts (in whatever way one wishes to explain) with God's creatures and providentially guides them. Subscribers to such an outlook will argue (along with Teilhard) that there is plenty of Biblical support for the notion that humanity should be imbued with greater theological value. They might point to the idea that God - who is at least in some sense temporal - purposefully works through nature to bring about beings who can respond to God with equal purposiveness. They might also wish to retain the importance of the soul, and

¹⁰¹ Christopher Southgate "Free-Process" and "Only Way" Arguments', in Stanley P. Rosenberg (ed.) *Finding Ourselves After Darwin: Conversations on the Image of God, Original Sin, and the Problem of Evil* (Grand Rapids MI: Baker Academic, 2018), p.298

¹⁰² Paul Tillich *Systematic Theology Vol. 1* (Chicago: University of Chicago Press, 1951), pp.263-4

¹⁰³ Baldner & Carroll (trans.) *Aquinas on Creation*, p.16

¹⁰⁴ Richard Grigg 'Religion, Science, and Evolution: Paul Tillich's Fourth Way', *Zygon: Journal of Religion and Science Vol. 38 No. 4* (2003), p.953



argue that there is a qualitative difference between humans and non-humans, for which a soul is necessary to explain. No doubt, they would see biological progress (assuming there is any) as irrefutable proof of God's guiding hand. They would be correct to point out that Thomas Aquinas - whom this paper has used in support of its position - also drew heavily on the Bible and could hardly have understood his theory of creation as ontological dependency in the context of an evolutionary worldview, least of all one such as Dawkins'.

Readers who are sympathetic to this theological outlook will no doubt point out that the Bible and much of theological history - including Thomas Aquinas himself - has presented an outlook of the universe and the role of humanity within it that seems to be at odds with the approach outlined in this paper. These readers might suggest that Biblical themes seem to lend themselves more to an interpretation of evolution such as Teilhard or Moltmann. Surely, they might suggest, the point of creation is God's desire for creatures that are capable of worship of God and response to the incarnation, hence a theological interpretation that might favour Teilhard. Or, perhaps, surely the teaching of Jesus - expounded in the Sermon on the Mount - shows that a world in which random mutation and 'blind' neutral reproduction differentials are hardly the intention of God for God's creation, hence of a theological interpretation of evolution that might favour Moltmann.

These are valid concerns, and it falls outside the scope of this paper to respond to them fully. However, importantly, this paper has not pretended to refute beyond all reasonable doubt the coherence of positions similar to Teilhard or Moltmann; it is concerned with showing that a third alternative is possible. Nevertheless, it is important to note that some modern theologians argue that the Biblical idea of God should be seen within its historical place, and that there might be valid reasons for drawing on other ideas. Philip Clayton, for example, notes that the Bible represents a theological development from polytheism, through henotheism, before finally settled on monotheism,¹⁰⁵ and that despite the fact that Biblical authors professed strict monotheism 'remnants of polytheism [or, more accurately, henotheism] remained in the picture of God and God's action.'¹⁰⁶ In this way, although Christian theologians 'moved away from many gods to one God...they have often continued to conceive of God as a being who stands alongside the world, which becomes a "handiwork" he has crafted.'¹⁰⁷ Some see this as a tension between what might be called 'theistic personalism' or 'monopolytheism' and 'traditional theism.'¹⁰⁸ That is, between a God who is ontologically transcendent of the world and 'a view of God not conspicuously different from the polytheistic picture of the gods as merely very powerful discrete entities who possess a variety of distinct attributes that lesser entities also possess, if in smaller measure.'¹⁰⁹ It might be suggested that a God who purposely creates through natural processes to bring about a creature - humans - that God values more than others is a God who is 'not conspicuously different from the polytheistic picture of the gods.' If that is that case, then it is somewhat ironic (given Biblical Fundamentalism's unapologetic rejection of evolution in every guise) that it will be the reader who is most unwilling to abandon this

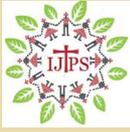
¹⁰⁵ Philip Clayton *God and Contemporary Science* (Edinburgh: Edinburgh University Press, 1997), p.83ff.; see also Davison *Participation in God*, p.137

¹⁰⁶ Clayton *God and Contemporary Science*, p.86

¹⁰⁷ Clayton *God and Contemporary Science*, p.86

¹⁰⁸ See David Bentley Hart *The Experience of God: Being, Consciousness, Bliss* (London: Yale University Press, 2013), p.127; and Brian Davies *An Introduction to the Philosophy of Religion* (Oxford: Oxford University Press, 2004), pp.1-20

¹⁰⁹ Hart *The Experience of God*, p.127



(Biblical) picture of God as temporal being who acts in and through natural processes to providentially guide creation to a specific end who finds the speculative suggestion that evolution is theologically irrelevant most problematic.

These readers might also disagree with the weight given to Dawkins, and protest that there are other ways of looking at evolution that do not necessarily lead to the outlook that this paper takes as its starting point. Evo-Devo and Epigenetics might represent important biological developments that do exactly this,¹¹⁰ that is, seriously question the popular Dawkins position. Certainly, there is much to be said for these alternative biological viewpoints that may very well lend themselves much to the theological positions (such as Teilhard's) that this paper has dismissed. This paper has not denied such biological alternatives are available, but has suggested that even if it were conclusively proven beyond all doubt that there is real genuine biological direction and progress in evolution, or that there are certain and/or particular mutations that are objectively biologically more valuable, there might still be theological reasons why such conclusions might be irrelevant to what the theologian means by creation. In other words, it cannot be stressed enough that if Thomas Aquinas' theory of creation as ontological dependency is correct then *no* theory of *biological* evolution is *theologically* relevant. Creation is about participation in God, not the emergence of a particular biological form. Thus, it is not that Dawkins' particular theory of evolution becomes more attractive to the theologian, but that there is no theological reason why the theologian should discard it for another. As Paul Tillich warns, the theologian should not prefer one scientific theory over any others *by theological reasons alone*.¹¹¹ That is, the point here is not to deny that those theological values that led Teilhard and Moltmann (and others that share their outlook) to view evolution in a particular way are wrong, but that none of those theological values should lead to the preference of one theory of evolution over another *if* creation is about participation and not biological emergence. Again, the point of this paper is not to suggest that Dawkins' position is the only genuine biological position, but that it is not completely adverse to theological interpretation and, further, that certain theological interpretations might find Dawkins' position theologically valuable.

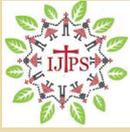
Christians concerned with themes such as human capacity for response to and relationship with God or the emergence of a world in which the morality of the Sermon on the Mount is central might have reasons to disagree with Dawkins' 'blind pitiless indifference.' Likewise, the Bible presents a God who is hardly indifferent to the plight of God's creatures, and actively involves Godself in their lives. Such sentiments are perfectly understandable. The point this paper has tried to show is that such sentiments should not lead to the preference of one theory of evolution over another, especially if Aquinas is correct to see creation as participation.

CONCLUSION

If one should remain (objectively) neutral towards mutations, and selection can be 'reduced' to nothing more than a question of differential rates of reproduction (which does not reject or ignore that suffering happens, but disagrees that it is an *inherent* part of evolution), then one can reach a third position: evolution is neither part of God's intentions nor does it run counter to or thwart God's intentions or purposes. This in no way implies that evolution cannot be considered 'creative' (in a certain sense), nor does it deny the very

¹¹⁰ e.g., Eva Jablonka & Gal Raz 'Transgenerational Epigenetic Inheritance: Prevalence, Mechanisms, and Implications for the Study of Heredity and Evolution', in *The Quarterly Review of Biology* Vol. 84 No. 2 (2009)

¹¹¹ Tillich *Systematic Theology* Vol. 1, p.130



obvious reality of pain, suffering and death, but it argues that neither of these are theologically significant or relevant. Evolution is neither (*contra* Teilhard, Southgate *et al*) creative (in a theological sense), nor (*contra* Messer, Moltmann *et al*) does it *inherently* cause suffering. This points towards the conclusion that God is entirely neutral about whether evolution happens or not.

Creation, at least for the Thomist, is ‘the investigation of the dependence of all that is on God,’ that is, ‘dependence in the order of being,’¹¹² or, put differently, ‘God’s creative action *just is* creation’s dependence on God for its existence.’¹¹³ *Creatio* is not the process through which a specific aggregation of atoms or state of affairs is realised, but is simply the fact that such a universe has ‘being.’ More importantly, this means that *creatio* is not gradated; all creatures are metaphysically equal before God. A specific biological *mutatio* does not make one metaphysically superior. Put as simply as possible, why there is something rather than nothing is a uniquely theological question (metaphysical category) and it requires a uniquely theological answer (creation). On the other hand, why a particular something is the particular thing it is, is a uniquely scientific question (biological concept) and it requires a uniquely scientific answer (origins/evolution). Ultimately, God can be seen as being unconcerned with ‘*what*’ things are - God ‘[lets] be whatever would and could emerge’ - God is only concerned ‘*that*’ things are, and that those things, ‘*whatever*’ they are, fulfill ‘*that*’ which they are. In other words, ‘*what*’ something is cannot mean ‘*that*’ it is to a greater extent.

Of course, there will be those who find what has been written here problematic. A suggestion of what a response to those criticisms has been tentatively made. Yet, importantly, this paper has not wished to say that positions similar to Teilhard and Moltmann are unequivocally wrong, or that Dawkins is the only biologist worthy of consideration; it has simply tried to point out that there is a significant theological reason why one might wish to disagree that evolution can be theologically creative, and there is an important biological reason why one might wish to disagree that evolution inherently causes suffering. If one considers these notions seriously, then it is entirely possible for theologians to agree with Dawkins: there is no purpose *in evolution*.

BIBLIOGRAPHY:

- [1] Richard Dawkins *River Out of Eden: A Darwinian View of Life* (London: Phoenix, 1996), p.155
- [2] Michael Ruse *Monad to Man* (Cambridge MA.: Harvard University Press, 1996),
- [3] Christoph Schönborn *Chance or Purpose* (San Francisco CA: Ignatius Press, 2007), p.28; Edward Feser *Scholastic Metaphysics* (Heusenstamm: editiones scholasticae, 2014),
- [4] Christopher C. Knight ‘Divine Action and the Laws of Nature: An Orthodox Perspective on Miracles’, in Daniel Buxhoeveden & Gayle Woloschak *Science and the Eastern Orthodox Church*, Abingdon: Routledge (2016),
- [5] Paul Tillich *Systematic Theology Vol. 1* (Chicago: University of Chicago Press, 1951),
- [6] Nicholas Saunders *Divine Action & Modern Science* (Cambridge: Cambridge University Press, 2002),
- [7] Pierre Teilhard de Chardin *The Heart of the Matter* (London: Collins, 1978),
- [8] Pierre Teilhard de Chardin *The Phenomenon of Man* (New York NY: Harper & Row, 1959),
- [9] Pierre Teilhard de Chardin *Activation of Energy* (London: Harvest, 1978),
- [10] Pierre Teilhard de Chardin *Towards the Future* (London: Harvest, 1975),
- [11] Pierre Teilhard de Chardin *Writings in the Time of War* (London: Collins, 1968),
- [12] Christopher Southgate *The Groaning of Creation* (Louisville KY: Westminster John Knox Press, 2008)

¹¹² Baldner & Carroll (trans.) *Aquinas on Creation*, p.4

¹¹³ Bishop & Perszyk ‘The Divine Attributes and Non-personal Conceptions of God’, p.614



- [13] Christopher Southgate 'Re-Reading Genesis, John and Job: A Christian Response to Darwinism', in *Zygon: A Journal of Religion and Science Vol. 46 No. 2* (2011),
- [14] John Haught *God After Darwin* (Boulder CO: Westview Press, 2000); John Haught *Making Sense of Evolution* (Louisville KY: Westminster John Knox Press, 2010)
- [15] John Polkinghorne *Science and Creation* (London: SPCK, 1988); John Polkinghorne *Science and Providence* (London: SPCK, 1989)
- [16] Arthur Peacocke *Theology For A Scientific Age* (London: SCM Press, 1993); Arthur Peacocke *Paths from Science Towards God* (Oxford: OneWorld, 2001)
- [17]¹ David Hull 'The God of the Galapagos', in *Nature Vol. 352* (1991),
- [18] Rik Peels 'Does Evolution Conflict with God's Character?' in *Modern Theology Vol. 34 No. 4* (2018),
- [19] Neil Messer 'Evolution and Theodicy: How (not) to do Science and Theology', in *Zygon: Journal of Religion and Science Vol. 53 No. 3* (2018),
- [20] Messer 'Evolution and Theodicy: How (not) to do Science and Theology'
- [21] Jürgen Moltmann *The Way of Jesus Christ* (London: SCM Press, 1990),
- [22] Moltmann *The Way of Jesus Christ*, p.297; see also Denis Edwards *The God of Evolution* (Mahwah NJ: Paulist Press, 1999),
- [23] Jürgen Moltmann *God in Creation: A New Theology of Creation and the Spirit of God* (Minneapolis MN: Fortress Press, 1993),
- [24] Burton Guttman, Anthony Griffiths, David Suzuki, and Tara Cullis *Genetics* (Oxford: One World, 2002), p
- [25] Jacques Monod *Chance and Necessity* (London: Collins, 1972), p.115; see also R.J. Berry *Neo-Darwinism* (London: Edward Arnold Limited, 1982), p.57; Richard Dawkins *The Blind WatchMaker* (Oxford: Oxford University Press, 1986),
- [26] Carroll *Endless Forms Most Beautiful: The New Science of Evo Devo and the Making of the Animal Kingdom* (New York NY: W.W. Norton & Company, 2005),
- [27] Michael Ruse *Darwin and Design: Does Evolution Have a Purpose?* (Cambridge MA: Harvard University Press, 2003),
- [28] Richard Dawkins *The Selfish Gene* (Oxford: Oxford University Press, 2006)
- [29] Theodosius Dobzhansky *Mankind Evolving* (New Haven CT: Yale University Press, 1962),
- [30] Theodosius Dobzhansky *Genetics and the Origin of Species* (New York NY: Columbia University Press, 1982),
- [31] Ronald Fisher *The Genetical Theory of Natural Selection* (Oxford: Oxford University Press, 1930),
- [32] Ronald Cole-Turner *The New Genesis: Theology and the Genetic Revolution* (Louisville KY: Westminster/John Knox Press, 1993),
- [33] Richard Dawkins *The Extended Phenotype* (Oxford: Oxford University Press, 1999),
- [34] Charles Darwin *Origin of Species* (London: Penguin Classics, 2009),
- [35] Dobzhansky *Mankind Evolving*, p.47; see also Theodosius Dobzhansky *Biology of Ultimate Concern* (London: Rapp and Whiting, 1969),
- [36] Peter Corning 'Beyond the modern synthesis: A framework for a more inclusive biological synthesis', in *Progress in Biophysics and Molecular Biology Vol. 153* (2020),
- [37] Eva Jablonka & Gal Raz 'Transgenerational Epigenetic Inheritance: Prevalence, Mechanisms, and Implications for the Study of Heredity and Evolution', in *The Quarterly Review of Biology Vol. 84 No. 2* (2009)
- [38] Mariusz Tabaczek 'An Aristotelian Account of Evolution and the Contemporary Philosophy of Biology', in *Dialogo Vol. 1 No. 1* (2014),
- [39] Andrew Louth 'The Cosmic Vision of Saint Maximos the Confessor', in Philip Clayton & Arthur Peacocke (eds.) *In Whom We Live and Move and Have Our Being* (Grand Rapids MI: William B. Eerdmans, 2004),
- [40] Ashely Purpura *God, Hierarchy, and Power: Orthodox Theologies of Authority from Byzantium* (New York NY.: Fordham University Press, 2018), pp.29-30; see also Louise Nelstrop *Christian Mysticism* (Surrey: Ashgate, 2009), p
- [41] Pseudo-Dionysius, *The Complete Works* (Mahwah NJ: Paulist Press, 1987), DN 4.4.
- [42] Paul Rosenblum 'Seeking Purpose in Creation and Evolution: The Agapic Principle', in *Theology and Science Vol. 18 No. 1* (2020),
- [43] Mariusz Tabaczek 'The Metaphysics of Evolution: From Aquinas's Interpretation of Augustine's Concept of Rationes Seminales to the Contemporary Thomistic Account of Species Transformism', in *Nova et vetera Vol. 18 No. 3* (2020),



- [44] *Humani Generis*, 36; See Christopher Haw ‘The Human Soul and Evolution: A Mimetic Perspective’, in *New Blackfriars Vol. 102 No. 1097* (2021)
- [45] Warren Brown ‘Cognitive Contributions to Soul’, in Warren Brown, Nancey Murphy & H. Newton Malony (eds.) *Whatever Happened to the Soul: Scientific and Theological Portraits of Human Nature* (Minneapolis MN: Augsburg Fortress Press, 1998), p
- [46] Thomas Merton *New Seeds of Contemplation* (London: Burns & Oates, 1961), p.30 ; cf. Rosenblum ‘Seeking Purpose in Creation and Evolution: The Agapic Principle’,
- [47] Paul Davies ‘Teleology without Teleology: Purpose Through Emergent Complexity’, in Philip Clayton & Arthur Peacocke (eds.) *In Whom We Live and Move and Have Our Being: Panentheistic Reflections on God’s Presence in a Scientific World* (Grand Rapids MI: William B. Eerdmans Publishing Company, 2004),
- [48] Andrzej Maryniarczyk ‘Philosophical Creationism: Thomas Aquinas’ Metaphysics of *Creatio ex Nihilo*’, in *Studia Gilsoniana Vol. 5 No. 1* (2016),
- [49] *Summa Contra Gentiles* 2. 17; see also Maryniarczyk ‘Philosophical Creationism: Thomas Aquinas’ Metaphysics of *Creatio ex Nihilo*’, p.238
- [50] Étienne Gilson *Medieval Essays* (Eugene OR: Cascade Books, 2011),
- [51] Rowan Williams *Christ: The Heart of Creation* (London: Bloomsbury Continuum 2018), p
- [52] Gavin Kerr ‘A Thomistic metaphysics of creation’, in *Religious Studies Vol. 48* (2012),
- [53] Andrew Davison *Participation in God* (Cambridge: Cambridge University Press, 2019), p.26
- [54] John Bishop & Ken Perszyk ‘The Divine Attributes and Non-personal Conceptions of God’, in *Topoi Vol.36* (2017)
- [55] Caleb Cohoe, ‘There must be a First: Why Thomas Aquinas Rejects Infinite, Essentially Ordered, Causal Series’, in *British Journal for the History of Philosophy Vol. 21 No. 5* (2013),
- [56] Philip Sherrard *Christianity: Lineaments of a Sacred Tradition* (Edinburgh: T&T Clark, 1998), p.239; See also Andrew Davison ‘Looking Back Towards the Origin: Scientific Cosmology as Creation *ex nihilo* Considered “From the Inside”’, in Gary A. Anderson & Markus Bockmuehl (eds.) *Creation Ex Nihilo: Origins, Development, Contemporary Challenges* (Notre Dame IL.: University of Notre Dame Press, 2018), p.371ff.
- [57] Torstein Theodor Tollefsen *Activity and Participation in Late Antique and Early Christian Thought* (Oxford: Oxford University Press, 2012), p
- [58] Steven Baldner & William Carroll (trans.) *Aquinas on Creation* (Toronto: Pontifical Institute of Mediaeval Studies, 1997),
- [59] Alfred Freddoso ‘Introduction’, in Francisco Suarez *On Creation, Conservation, and Concurrence* (Indiana: St. Augustine’s Press, 2002),
- [60] John C. Greene & Michael Ruse ‘On the Nature of the Evolutionary Process: The Correspondence between Theodosius Dobzhansky and John C. Greene’, in *Biology and Philosophy Vol. 11* (1996),
- [61] Michael Ruse *Darwin and Design: Does Evolution Have a Purpose* (Cambridge MA: Harvard University Press, 2003), p.264 (*italics* in original)
- [62] David Bentley Hart *The Experience of God: Being, Consciousness, Bliss* (London: Yale University Press, 2013), p.127; and Brian Davies *An Introduction to the Philosophy of Religion* (Oxford: Oxford University Press, 2004),
- [63] Eva Jablonka & Gal Raz ‘Transgenerational Epigenetic Inheritance: Prevalence, Mechanisms, and Implications for the Study of Heredity and Evolution’, in *The Quarterly Review of Biology Vol. 84 No. 2* (2009)