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RESPONSE WITH A SELECT BIBLIOGRAPHY

by Christopher Southgate 

Abstract. In this response to the articles in this issue, Southgate considers lessons to be learned in respect of science–religion teaching, and about his edited textbook *God, Humanity and the Cosmos*. He emphasizes the importance of collaborative work in theology. He then considers issues in evolutionary theodicy raised by other contributors, especially eschatology, divine passibility, and the status of the "only way" explanation of evolutionary suffering. Lastly, he engages with critiques of his work based on a preference for characterizing the

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disvalues of creation in terms of “mysterious fallenness.” The article is followed by a select bibliography of his published work since 1979.

Keywords: eschatology; evolutionary biology; fallenness; “only way” argument; original sin; passibility; pedagogy; poetry; theodicy; theology and science

This brief response will contain a number of appreciations, though it also gives me an opportunity to engage with important issues raised in the articles in this issue. I am extremely grateful, first of all, to Bethany Sollereder and Andrew Robinson for proposing such an issue of *Zygon* and for editing the materials. Both were PhD students of mine; both have such intellectual energy and creativity that they would have made any supervisor look good.

I am also deeply touched that so many scholars have been willing to contribute, including greatly valued former students as well as many senior figures whose work has been an inspiration to me. I am much honored that they should have taken the trouble to write for this issue. I am also delighted that this “festschrift” collection appears in *Zygon*, in which I published my first full academic article (and later a series of poems), and which remains such a major contributor to the interface between the sciences and theological and religious thought. And it is splendid that this issue itself contains a poem by my long-time poetic collaborator Richard Skinner, and a generous reflection on the importance of poetry from Margaret Boone Rappaport and Christopher Corbally.

PEDAGOGY IN SCIENCE AND RELIGION

Some of these articles touch on my approach to teaching (Gibson, Hickman, Corbally and Rappaport). The opportunity to teach on the science–religion debate at Exeter arose almost by chance out of a conversation at a cricket match with my then boss, the New Testament scholar Richard Burrige, and the encouragement of the then Head of the Theology Department, David Catchpole. It was good to read in Timothy Gibson’s article an evocation of the way Catchpole encouraged my own development. Though our approaches to teaching have been very different, I learned hugely from Catchpole’s care and encouragement of each and every student he taught, as well as from Burrige’s exemplary willingness to review practice and improve upon it in the light of feedback. It is moreover a great pleasure to see former students of mine in academic posts—not only Louise Hickman who has done such fine work at Newman University, Birmingham, and Gibson who is now at the University of the West of England, but also two much valued colleagues now on the staff at Exeter, Susannah Cornwall and Jonathan Morgan.

One of the excitements of teaching is the way students develop one's own thinking. A good example of this is the line exercise I use to enable students to explore the human vocation in respect of the ecological crisis. This was refined and enhanced by the response of students who refused to stand on the line (see Horrell, Hunt, and Southgate 2010, 179 for a discussion). So often one gets more back than one presented—as at the 2016 Academy of Religion session at which I demonstrated Newtonian and Aristotelian tennis balls (see Corbally and Rappaport 2018), and was offered all sorts of extensions to the experiment—the relativistic tennis ball, the quantum tennis ball, and so on.

Some of the articles provide feedback on the textbook *God, Humanity and the Cosmos*. I take it as a particular compliment that Willem Drees, who has been such a distinguished figure in the debate as well as an excellent editor of this journal, should address the project of the book (Drees 2018). I can echo his experience of a shift in the confessional background of students; this last term (autumn 2017) was the first time I taught a group of theology students none of whom had any developed Christian commitment. In that sense *God, Humanity and the Cosmos* remained a child of its genesis in the mid-1990s, when it was more plausible to approach the UK sector with a textbook drawing its focus from Christianity.

One of the strengths of *God, Humanity and the Cosmos*, however, is as an example of the merits of collaboration, of which there is too little in academic theology. That the book turned out to be a significant contribution owed much to the energy of the core team who first planned it out—in particular Paul Murray, Lawrence Osborn, Michael Poole, and Michael Negus. Collaboration can be hard work but I have always found it very rewarding, and commend it to those making their way in theology. See Robinson (2018) for an account of our own interdisciplinary collaborations. It was very good too that other scholars of international distinction were drawn into the textbook project, including John Hedley Brooke, whose piece in this issue continues his invaluable setting-straight of so many misconceptions that creep into presentations of the science–religion debate (Brooke 2018).

Philip Clayton and Steven Knapp—another fine instance of theological collaboration—are also authors relentless in their efforts to set straight what can be thought, notably in key areas such as divine action and interfaith dialogue (Clayton and Knapp 2011). In this issue, they pursue the theme of contingency in the arts. My own college at Cambridge, Christ's, boasts few outstandingly famous members, but its “top two” are John Milton and Charles Darwin. The theme of contingency is well illustrated by my wife Sandy's observation that had Darwin died of some sudden illness in the 1840s, the theory of natural selection would still have emerged at a very similar date to that of the publication of *The Origin of Species*, but had Milton died in the 1640s we would never have had the masterpiece

Paradise Lost. This illustrates well Clayton and Knapp's conclusion that this contingency in no way diminishes the power of the artifact (Clayton and Knapp 2018, 773). They go on to explore Christological contingency, a theme I have often wondered about. Their conclusions have interesting links with recent explorations by Robinson and myself of Jesus' life as sign of the life of God (Robinson 2014; Southgate 2018, Chapter 5).

EVOLUTIONARY THEODICY: INTRODUCTION

I come now to the discussion of evolutionary theodicy that engages the majority of the contributors to the issue. All the authors agree on the need to dispense with the ancient Christian answer that the suffering of all creatures stemmed from a Fall-event of two humans. All but three are in broad sympathy with some or all of the elements of my own approach of a "compound theodicy." This approach offers an exploration of the ways of God with the nonhuman world through a composite argument including the following: an "only way" argument that God was necessarily constrained to use evolution as a means to give rise to the values in creation; also some account of God's compassionate engagement with the suffering of individual creatures; some consideration of the human vocation in respect of the nonhuman world; and an eschatological dimension.

In what follows I first register some points of contact and creative tension with those authors sympathetic to my views, and then give more detailed attention to the three interlocutors who opt for a different type of theodicy based on "mysterious fallenness" (my terminology not theirs).

EVOLUTIONARY THEODICY: ESCHATOLOGICAL CONSIDERATIONS

Interestingly, it is my eschatological proposal in *The Groaning of Creation* (of a redeemed life for nonhuman creatures who had known no fulfillment in their first existence) that attracts most attention from the authors responding to *Groaning*. This is paradoxical given that this is of necessity the area we know least about, yet I have often found the same in discussion following lectures on the subject. Sometimes this is because audiences are reacting for the first time to the thought that "heaven" might be full of nonhuman creatures. Sometimes too there is a strong reaction to my (tentative) proposal that there might still be the predatory leopardness of leopards in this redeemed life. (Here, I am very grateful to the imaginative suggestion of Sollereeder that the eschatological interaction of creatures who were predators and prey in the protological world might be akin to sporting contests (Sollereeder 2018, 732).)

Ernst Conradie offers a characteristically discerning analysis of the options open to the evolutionary theodicy and ecotheologian (Conradie

2018). He correctly identifies my eschatology as “elevationist,” stressing the transformation of the old creation into the new. His emphasis on characterizing the overall temporal shape of theological narratives is very helpful, even if he for his own reasons—related to social and ecological aspects of anthropogenic “evil”—adheres more closely to the narrative of fall and redemption than I feel able to do. The insistence among so many Christian theologians in asking “what went wrong?” is so instinctive as to be very hard to shift. (It might help the debate to combine that question with another one: what, in the history of human evolution, went “right” in theological terms?)

As I might have expected, my position on eschatology proves to be closest to that of Denis Edwards, with whom I have had many much-valued conversations over the years. I am courteously taken to task by Holmes Rolston for relying too much on the dimension of eschatological compensation (Rolston 2018), whereas in their different ways Ted Peters, John Haught, and Robert John Russell all consider that I could have given more weight to the eschatological dimension of my theodicy. For Peters this is a question of emphasis, of drawing out the resurrection dimension of Christian doctrine (and therefore theodicy) as well as that of the Cross. For Haught and Russell a stress on the eschaton becomes *the* key move in constructing an evolutionary theodicy. For Haught this is because the unfinishedness of creation, viewed from a perspective owing much to Pierre Teilhard de Chardin, is the central response to protest at the apparent cruelty of creation. Haught has developed this theme in a number of important books, especially his invaluable *God after Darwin* (Haught 2000). To me however this appeal to unfinishedness is a plausible response to natural evil but only questionably any sort of theodicy.

My debt to Bob Russell for his leadership in the science–religion community and his personal encouragement is very great. I am struck in his essay in this issue by the strong emphasis he places on eschatology as *the* key move in evolutionary theodicy. He sees that behind the biology of natural selection lie, necessarily, laws and constants of fundamental physics. Because he cannot demonstrate that there might not have been other laws and constants leading to a world of less suffering, he resorts to a theodicy of eschatological redemption (Russell 2018). This is perhaps to underrate the point I make in the “only way” argument—namely, that if there *had been* a way of ordering the world that did not lead to so much suffering, the God I confess in Christ would have adopted it. The thrust of the argument is theological, more than scientific. My more general point is that to place all the emphasis on any one element in an evolutionary theodicy is to risk that theodicy being altogether defeated by one of the many objections that can be raised against each element. Hence, the significance of a compound theodicy that appeals to a number of moves in combination.

EVOLUTIONARY THEODICY: DIVINE CO-SUFFERING

I turn now to the question of God's co-suffering with the suffering of creatures. Edwards rightly says that the doctrine of divine impassibility is not to be lightly dismissed. But I am struck, not for the first time, by the fact that defenders of impassibility often want to say almost everything that passibilists want to say. Classical theologians do indeed stress, as Edwards points out, "God's intimate presence to creatures" (Edwards 2018, 684). Bernard of Clairvaux asserts that "God cannot suffer but can cosuffer" (quoted in Moltmann 2015, 39). Hans von Balthasar eventually arrives at the conclusion that "there is something in God that can develop into suffering" (Von Balthasar 1994, 328). Edwards quotes Anatolios to the effect that in loving kindness and mercy "God can transcend God's own transcendence" (Edwards 2018, 685). Some of this ends up very close to Jürgen Moltmann's relational emphasis in statements like "the living God cannot be a God who is unable to suffer, because God is not a God without relationships" (2015, 42). For Moltmann, it is necessary to reject "the absolute God . . . set apart from the world of the living through negations of worldly characteristics" in favor of "the living God" of relationships (43). Many, in contrast, will feel the need of Gavriilyuk's impassibility as "a kind of apophatic qualifier of all divine emotions and as the marker of unmistakably divine identity" (quoted in Edwards 2018, 685). But given the metaphysical gulf between passibilism and impassibilism, the gap between the positions reached in respect of specific cases of suffering is a narrower one than is often supposed.

EVOLUTIONARY THEODICY: THE 'ONLY WAY' ARGUMENT

What of the "only way" argument itself? It has been particularly associated with my position in *Groaning*, though versions of it had been advanced by Niels Gregersen, Robin Attfield, and Nancey Murphy, among others (Gregersen 2001; Attfield 2006; Murphy 2007). Recent critiques include Nathan O'Halloran's (2015) and Mats Wahlberg's (2015). O'Halloran's is the less troubling, since it defaults to a version of an angelic fall, which I have already refuted on both scientific and theological grounds (Southgate 2008, Chapter 2; Southgate 2011). Wahlberg's argument is essentially that God could have created *de novo* the biosphere at any point in its evolutionary development, so that my argument that creaturely selves could only have arisen by that three-billion-year-old and suffering-filled evolutionary process must be false. Various responses can be made to this, including Sollereder's important point that creatures have histories (Sollereder 2018, 728). I return to the point I made in relation to Russell's argument—if the God I confess could have mitigated the millions of years of creaturely suffering that have led up to the age of the new creation, I have held that God would have done so. So although I cannot directly falsify Wahlberg's

thought experiment, I can still hold on theological grounds that it cannot refute the only way argument.

The thinker to have asserted most trenchantly that life could not have been otherwise is Holmes Rolston, III, one of the most important naturalists to have shaped contemporary environmental ethics. I have the fondest memories of hosting his visit to Exeter the year he won the Templeton Prize, and of having to pause on our very tight schedule to inspect a tiny flower growing out of a crevice in a wall. Rolston wrote as long ago as 1987 of nature as a kind of “passion play” (Rolston [1987] 2006, 144). He adds to this somewhat mystical formulation his sense that the processes are self-redeeming—“There is death: but, with regeneration, life ongoing — like a seed fallen into the earth.” That enables him to reject schemes such as mine in *Groaning* in which it is important that individual sentient creatures that have known no fulfillment in this life have an opportunity to live such a fulfilled life in an eschatological state. Partly, he rejects such a picture on the grounds that if lionesses have to eat straw, they cease to be themselves, a point I myself accept (Southgate 2008, 88–89). Partly, Rolston is exercised by the sheer profusion of eschatological life that would result.

I still hold to my position on redemption, and my rejection of that part of Rolston’s argument (Southgate 2008, 45–47). But I am happy to concede that as my explorations have continued I am more and more drawn towards a “passion play” position. This idea of the “cruciformity” of the creation (Rolston [1987] 2006, 144) I understand to be that threaded through the creation—not necessarily because of a fall-event but possibly because of the will of the Creator—is suffering and lives sacrificed for others. The narrative of evolving life is tough and full of casualties, for whatever reason or reasons. It is like a drama in which sacrifices are continually asked of the weak, the vulnerable, and the blameless. A related approach to Rolston’s seems to be at work in Celia Deane-Drummond’s invocation of “theodrama” as the most appropriate genre into which to cast the interaction of theology with evolutionary biology (Deane-Drummond 2009).

I cannot give a definitive account of why it was metaphysically impossible for an utterly transcendent, utterly sovereign God, the God to whose glory the wondrous scale of the universe bears witness, to give rise to a suffering-free world. That apparent constraint on the possibilities open to the creator of the cosmos *ex nihilo* remains not wholly demonstrated in my scheme. *Scientifically* the notion that this is the only sort of universe where values of beauty, ingenuity, and diversity could *evolve* (as opposed to being beamed down by divine *fiat*) is highly plausible. Up to now, as I indicated above, I have added to that scientific guess the theological assertion that the God confessed in Christ would not have used a Darwinian process if a less suffering-filled process were available. But suppose now we dilute the force of that assertion, and admit that theologically God’s mode of creation

remains a mysterious choice. Then we arrive in the territory of Rolston's passion play, his cruciformity of creation.

But note that God is an actor in the passion play, intimately present to all creatures in their suffering, so that none suffers or dies alone (Southgate 2008, 50–53, 56–57). This is of a piece with my conviction that the Incarnation is not a response to the Fall but rather that—as in the thought of Gerard Manley Hopkins, and behind him Bonaventure—“the sacrifice of the Son is God's first thought of the world” (quoted in von Balthasar 1986, 380)—it is “the primary way in which the self-emptying, the pure being for another of God's personal, trinitarian being can be manifest externally” (von Balthasar 1986, 381). Hopkins, yet more radically, suggested in a sermon that “It is as if the blissful agony or stress of selving in God had forced out drops of sweat or blood, which drops were the world” (Hopkins 1959, 197).

Suffering *is* integral to the life-story—God relates intimately to that suffering and takes responsibility for the fact of it at the Cross (Southgate 2008, 76; Young 2013, 247). The only way argument is a plausible rationale for why this might be so. As I argue below, I regard it as superior to the choice that some element of mysterious fallenness might be the reason. But I have great sympathy with those who cannot accept the only way argument fully, and am content to concede an element of mystery *in our understanding of God* as to why the world should be like this.

ALTERNATIVE PERSPECTIVES

I come now to my three most severe critics in this issue—Neil Messer, Nicola Hoggard Creegan, and Celia Deane-Drummond. All three (in their different ways) want to contest my hard-reached (and reluctantly reached) conclusion that natural processes involving violence and harm (including earthquakes, volcanoes, predation, disease, and extinction) are part of the creation God intended. Each in their different ways seems to me to insist that some unexplained element intrudes upon God's creative process and distorts it, giving rise to aspects of the world that God did not will. That is why I group these approaches under the term “mysterious fallenness.”

I greatly welcome these contributions. As Messer says, identifying with more precision disagreements about method and theology can only stimulate the quality of future enquiry (Messer 2018, 833). As in the past, I am very appreciative of the care with which he analyzes our approaches. Also by his generative use of a taxonomy of approaches. I have used Messer's “five approaches” very helpfully to start class discussions, and I am enriched by his careful clarification of the approaches in this issue.

Messer, following Karl Barth and also drawing on Augustine's *privatio boni* approach to evil, and the work of antitheodiscists like D. Z. Phillips, wants to say that the factor that prevents the creation manifesting the

goodness God willed for it is necessarily not completely explicable. Messer's own preference is to draw on Barth's *Nichtige* postulate. *Das Nichtige* is not as I understand it a creature but, as it were, a shadow (my terminology not Messer's, and not used in the same sense as Barth) that falls across the field of possibilities in creation, such that creatures and processes are necessarily shadowed. In that sense, the *Nichtige* argument has similarities to the "only way" argument. God could not but create in a way that (for reasons we cannot fully understand) involves the shadow.

The difference is that the only way argument (though argued, as I noted above, for theological reasons in terms of God's goodness) accords with scientific instincts, and—crucially—the scientific picture that the same processes (plate tectonics, natural selection, etc.) give rise to both the values and disvalues of creation. The *Nichtige* argument accords with a *theological* instinct that God cannot be the creator of violence.

As Messer rightly says, the different weighting of these instincts says much about the differences between us. My concern over his choice is that the unity of the scientific account (which is not just the latest conjecture but is based on well-established complexes of theory, both in relation to geophysics and molecular biology) is rendered incoherent by the *Nichtige* theory, which holds that goodness in creation is at least theoretically distinguishable from "shadow." In Messer's terms, his "type 4" position, according Christian doctrine priority in the conversation, risks drifting as he himself admits "towards type 5, separating voices of science and the Christian tradition to the extent that the scientific voice can no longer make any contribution to theological understanding, and dialogue ceases" (Messer 2018, 833).

Whereas to accept the only way argument is to open up the possibility of learning something new theologically, namely that God, unable simply to create heaven, might will (and even delight in) the charge of the lion and the stoop of the peregrine falcon, even as God laments and suffers with the trauma of the prey. The excellences of predators do not, I hold, reflect the not-precisely-characterized (or characterizable) influence of "the shadow," but rather the will of God in creation. For some that will be a bridge too far. The theological cost of supposing God might will violence may be thought to render Christian doctrine incoherent. But this "new" theological learning seems to me in accord with the general tenor of the Hebrew Bible, which accepts that lions are lions, eagles are eagles, created and provided for by God.

Messer mentions at one point "the peace of creation in Genesis 1" (Messer 2018, 832). This is a very interesting phrase. It seems to me to load (implicitly) too much of a burden on two aspects of that chapter. First, the seeming affirmation of vegetarian paradise at Genesis 1:29–30. As Rolston indicates, this would actually have limited the biosphere enormously (Rolston 1992). This is therefore either a deficient vision of creation, or, as

has sometimes been suggested, an eschatological vision of a possible final harmonious state. If the latter, then it is in accord with my sense that God has ultimate longings for creation, and will ultimately transform it. The second key interpretative move in seeing Genesis 1 in terms of peace is a particular reading of the descriptions of creation in that chapter as “good” (*tôv*). The counter-Gnostic and anti-Manichaean history of the early Church propelled it not only into an affirmation of *creatio ex nihilo* but also into a belief that *tôv* must connote “altogether good,” lacking all disvalue (or “brokenness” in Messer’s terminology, 2018, 832). That disvalue then had to result from sin, or more generally from some privation of the perfect good.

The privation argument works well as a description of human agency—no freely choosing agent possessed of all the relevant wisdom and orientation of will would choose wrong willingly. For some recent defenders of this approach, see Williams (2016), Oliver (2017), and Rosenberg (2018). I have yet to see how it works as a description of the natural world in which value and disvalue are so intimately interconnected. Where is the *privatio* in the spellbinding sprint of the cheetah that brings down the slower gazelle (or fails to catch the faster)? Likewise, I have yet to see how the work of the antitheodists gives helpful purchase on this issue of evolutionary suffering (beyond reminding us how little we know of the actual experience of cheetah and gazelle).

But a willingness to read *tôv* in its more characteristic Hebrew meaning as fit for purpose, together with a recognition of the limitations of Fall-based arguments as descriptions of the natural world as we now understand it, allows us both to engage with difficult but generative explorations of the nature of the God-world relation, and to recognize that hints about that relation might have been there for us all along in the Hebrew Scriptures, concealed by the particular direction of travel that the hermeneutics of Genesis 1–3 took in the tradition. (See the work of William P. Brown and Tom McLeish for insights gained by not just starting from Genesis—Brown 2010; McLeish 2014.)

I am very attracted to Messer’s proposal that his “types 3 and 4” of science–theology relation might be a mutually stabilizing pair, each preventing the other from defaulting to a position that impoverishes dialogue (Messer 2018, 833). I would venture to add the suggestion that in consideration of the future of the universe (of which the resurrection of Christ is the prolepsis) theologians naturally need to work more in type 4. Science after all can only offer *predictions* of the future. Whereas in reflecting on the past and present, the scientific account, which provides a robust and detailed description of most elements of the unfolding of the universe from the Planck time up to now, needs to have proportionately greater weight.

I would be inclined to reframe Messer’s types 2–4 as follows: theologians should allow scientific findings (when robustly tested within their own community of enquiry) to pose questions to Christian hermeneutical

and doctrinal formulations. In turn theological communities would need to consider whether accepting these scientific findings deepens doctrinal enquiry, and/or permits a creative re-reading of sacred texts in reasonable continuity with textual scholarship, or whether the scientific conclusions place such an unbearable strain on biblical interpretation and doctrinal formulation that these conclusions must be set aside, at least for the present.

An example of the latter approach would be the predicted end of the universe. The science increasingly coheres around the prediction that this will be a “heat death,” containing no material structure, no apparent meaning. A whole range of considerations leads biblical interpretation and Christian doctrine to hold that God’s purposes for the creation culminate in a transformation to a state that is flooded with meaning, indeed with truth and beauty, for God will be all in all (1 Corinthians 15:28). So this is a case where theology should say to science that: “your prediction is only a prediction, the best naturalistic prediction we have at present, but other laws, forces or processes beyond your understanding may supervene.”

For most Christian scholars, including myself and, I imagine, Messer, the Resurrection of Jesus would be another such case. All the sciences cohere around the conclusion that someone tortured and executed as Jesus was cannot in any sense be subsequently “alive.” Yet, this conclusion is intrinsic to the Christian confession in general, and the witness of three of the Gospels in particular. Theology will therefore be inclined to respond to science as follows: “this event of resurrection lies outside your descriptions, either because it is an utterly unique event not subject to reproducible experiment, or perhaps because it is the prolepsis of the laws, forces and processes of the eschaton.” That said, I note that the conclusion of Clayton and Knapp is that the resurrection can be reinterpreted within a naturalistic frame. This involves rebalancing the hermeneutical approach to the relevant texts, giving more priority to the Pauline accounts than to the Gospel stories of resurrection appearances (Clayton and Knapp 2011, Chapter 5).

The issue of disvalues in the nonhuman creation represents a particularly interesting case of the theology–science conversation. Within my proposed methodology, I imagine Messer might characterize his approach as follows. The scientific conclusion—that values and disvalues have arisen together and inseparably in the only type of universe we know about—does, when translated into theological terms, too much violence to doctrinal formulations about God’s goodness (especially as understood through God’s saving initiative at the Cross), and to my reading of my preferred key texts, Genesis 1 and the peaceable kingdom texts of Isaiah.

This includes reading *tôv* in Genesis 1 in a rather Augustinian way, as the *bonus* of which evil is the *privatio*. Whereas my approach, as indicated above, is willing to read *tôv* in what I take to be a more characteristically Hebraic way, and to propose that the science here allows us to reconsider our formulation of our understanding of God’s ways with the

world, and rebalance our hermeneutics of creation towards considering a greater range of texts on creation, including Deutero-Isaiah, Psalm 104, Job 38–41, and Ecclesiastes. All of which, I suggest, goes to show not only that no one type of approach fits all case studies equally, but also that the same type of approach will lead different scholars to different conclusions.

I continue to be concerned about the coherence of Messer's own position on the "fallenness" or "brokenness" of creation, and whether it altogether avoids what he seeks to avoid. When he writes in this issue, "Christian tradition speaks of a world which is God's good creation, destined for ultimate fulfilment in God's good purposes, but is diverted from that destiny and distorted by the presence of evil" (Messer 2018, 831), that seems to me to take him too close to the "attractor" of cosmic dualism. And when Messer deploys the inevitability of *Das Nichtige*, that seems to me to fall either into cosmic dualism, or into a type of only way constraint that he also wants to resist. Lastly, when he writes "I am unwilling to learn from the natural sciences about the way things *really* are (theologically speaking)" (Messer 2018, 830), he seems to me to risk moving too close to a type 5 approach. To take only one example, is not our understanding of the way human beings really are enormously expanded by what the sciences of psychology and animal behavior have to tell us, insight to which most developers of Christian doctrine in the tradition had no access?

I hope these brief observations both emphasize the respect in which I hold Messer and how much I value his efforts to refine the quality of our disagreement. I turn now to Nicola Hoggard Creegan and her characteristically gracious article (Hoggard Creegan 2018). She ranges over my positions seeking to nuance or rebalance them in various ways. Her central metaphor, as in her book on theodicy (Hoggard Creegan 2013) is the indivisibility of "the wheat and the tares" (drawing on the parable in Matthew 13). She also asks me, in effect, to live more in my poetic self and less on the basis of hardline scientific instincts. However, one of the tasks of the poet is to press hard on the grain of metaphors, and check whether they are really delivering what is asked of them.

One example Hoggard Creegan gives is the reintroduction of wolves into Yellowstone, which improved the overall health of the ecosystem, though necessarily at the expense of trauma and suffering in the deer population as it suddenly faced a predator that had been absent from the scene. Hoggard Creegan concludes "Wheat and tares are necessarily mixed in this world" (Hoggard Creegan 2018, 815). So I want to ask her, what exactly are the wheat and tares in this example? If they are the values of flourishing and biodiversity (wheat) and the disvalues of suffering (tares), then I am entirely happy with the metaphor, as also with the parable's teaching that "the householder" allows the coexistence of wheat and tares until the final

consummation, when suffering will be finally be destroyed. If however the “tares” were the predators, the suffering-inflictors themselves, then the parable would not work well, because it is precisely the presence of the top predator that conferred a new level of flourishing on the system.

If we take another example of Hoggard Creegan’s, then the difference between our positions will be clearer. In respect of the Indian Ocean tsunami of 2004, she concludes that “there are elements out of kilter, malignant lines always slack in the fabric of creation, ready at a moment’s notice to be pulled taut and visible” (Hoggard Creegan 2018, 817). The implication seems to be that an opposing force, an “enemy” in the terms of the parable, both engendered these “lines” and pulled them taut, causing this catastrophic event. This is to superpose a spiritual level of explanation on the event that seems to me to be both unnecessary and unhelpful. The tectonic processes that gave rise to the tsunami are precisely those that so contributed to the life-bearing properties of the early Earth, and still replenish nutrients in the Earth’s oceans, and are (for example) in the process of making new Hawaiian islands, as the Pacific plate moves over the Hawaiian “hot-spot.” To suppose that the potential for destruction, and its occurrence on any particular occasion, arose because of spiritual forces opposed to God introduces all sorts of puzzles and incongruities. (Why, for instance, *that* fault movement, rather than one in California such as could presumably engender comparable destruction and loss of life?) If rather that terrible event is “God at work somehow” (Hoggard Creegan 2018, 817) (as opposed to God upholding the ambiguous processes by which the Earth “works” and evolves), then the theodical burden of the tsunami seems to me to become truly unbearable. Clayton and Knapp have written very eloquently about how contemplation of the tsunami shapes what can be believed of God’s working (Clayton and Knapp 2011, Chapter 3). As they put it in their essay in this issue, “the so-called laws of nature are expressions of divine agency, even if the effects of their operation are not determined in advance by particular divine intentions.” But “God neither controls nor predetermines the emergence of [creaturely] values or the particular forms they will take” (Clayton and Knapp 2018, 771–72).

One last observation on Hoggard Creegan’s essay. She questions whether natural selection will in the end turn out to be “necessary” in ecosystems, and appeals to “deeper principles of cooperation, and as yet unknown formal causes undergird[ing] the evolutionary process.” I agree that current work on evolutionary cooperation and convergent evolution, still at a very early stage, will probably shift our perspective on evolution somewhat. It happens that my involvement in origin of life work, which Hoggard Creegan is kind enough to mention, does involve exploring cooperation in RNA molecules (see <http://www.interpretationandcooperation.org> for a description of the new project). But that work, like other studies of cooperation, does not suppose that natural selection ceases to be a factor.

Cooperation changes the character of the entities selected for; it does not change the fundamental principle that in any given system there will be entities that are more and less well adapted. Selectability is still how we shall test for promising cooperation.

Lastly, I turn to the essay by Celia Deane-Drummond, the scholar in this field whom I have known the longest, and for whose indefatigable explorations I have very great respect. I was very pleased that she not only wrote a contribution, but used part of it to clarify the concept of “Shadow Sophia” (Deane-Drummond 2018, 803–05). It would be very good to bring Deane-Drummond and Messer into intensive dialogue as to how Sergius Bulgakov’s Shadow Sophia relates to Barth’s *Nichtige*. I keep hoping that there can be a sequel to the CTNS/Vatican Observatory Conference of 2005 on “scientific perspectives on natural evil” (Murphy, Russell, and Stoeger 2007), in which the disvalues of evolution could be the focus, and that would seem the right forum for that sort of careful scrutiny of ideas that (as Deane-Drummond’s piece shows) are both dense and elusive.

I hope readers of this journal will agree with me that the label “mysterious fallenness” is not unfair to these positions. In both Messer and Deane-Drummond, it seems, God’s act of creating gives rise to a kind of negative energy or shadow, which means that (in Bulgakov’s words “the life of creation is not only an idyll, the blossoming of being, but also the ‘struggle for existence’” (quoted in Deane-Drummond 2018, 804); it is threatened (in Messer’s Barthian formulation) by “chaos, disorder and annihilation . . . [such that] some features of the evolutionary process reflect, not God’s good creative purpose, but rather nothingness: the disorder and annihilation threatening the goodness of creation” (Messer 2018, 829).

Such a position seems to want to sit in the middle ground between a cosmic dualism in which choosing agents (themselves created) opposed the will of the Creator—this would be the position of Michael Lloyd (Lloyd 1998)—and the sort of logical constraint on creation that I invoke in the only way argument. Mysterious fallenness approaches differ from the “passion play” proposal discussed above in that in mysterious fallenness the mystery is *an attribute of the created world*—it somehow arises out of the possibility of creation—whereas in the passion play depictions the mystery resides in God. A more detailed evaluation of these options would be a step forward. To me, the argument that it is the same physical processes that give rise to value and disvalue, inherently ambiguous processes that it is not meaningful to dissect into good and bad, is a decisive recommendation of the logical constraint argument over options involving mysterious fallenness. And theologically it seems to me greatly preferable to locate the mystery of the issue in the nature of God than in some enigmatically alluded to opposing force. But I note with interest that two such careful theologians

with advanced scientific training as Messer and Deane-Drummond want to make a different choice.

Actually, there are more points of contact between Deane-Drummond's position and my own than she perhaps realizes. In pondering the reality of spiritual evil I am inclined to think that it gains its power from selfish, cruel, and violent human choices. A possibility in creation, that of the evolution of freely choosing agents, which arises out of God's creation *ex nihilo*, thus comes to include a power that can tempt humans to further bad choices, and exacerbate the addictiveness of those bad choices. That is how I construe Paul's descriptions of Sin as personified power, as distinct from individual transgressions (see, e.g., Romans 3:9, 5:12 for this usage, and also the Church's experience of the continuing need for a ministry of deliverance). There must be points of contact between this view and Bulgakov's "chaos seething under the crust of being . . . capable of becoming demonic" (quoted by Deane-Drummond 2018, 804). What I do not concede is that such a power is capable of altering the underlying physical processes of the cosmos, as required by angelic or mysterious fallenness.

I do, however, have considerable sympathy with Deane-Drummond's point that in considering the origin of sin it is important to ponder the actual choices that early hominids made (as a population, not just a couple). So although I have no sympathy with the efforts to retrieve a primal couple who were at some juncture the "federal" heads of the human species (as propounded by the late and much missed R. J. Berry [2003]), there *is* a historical aspect, not to a supposed Fall of the nonhuman creation, but to the fallenness of humanity, as conjectured by John Polkinghorne many years ago (Polkinghorne 1991, Chapter 8). I also agree that in our efforts to understand the evolution of free choices it is important to consider models in other animals, and how their "original selfishness" (Domning and Hellwig 2006) gives rise in some cases to "viciousness" (Deane-Drummond's word [2018, 799], though a tricky one to justify, as being so human-subjective).

In this area, starting from the neo-Darwinian framework that Deane-Drummond wants to move beyond (2018, 805–06) seems to me very helpful. What behaviors in other animals are explicable in terms of competition, the reinforcing of adaptive cooperation, niche construction, and learning, and what seem to have some overplus of what in humans we would call cruelty? How did those behaviors arise? Do we see any hominid evidence that might correspond to them? In posing these questions I should make it clear that I am not embracing Joshua Moritz's view that indeed creaturely choices can be used to account for all the disvalue in evolution (Moritz 2014). As will be clear from the above, I regard the fusion of value and disvalue in evolution as intrinsic to the sort of world this is. The cheetah is not "vicious," in the terms alluded to above, in its overhauling of the gazelle. I also remain to be convinced how meaningful it is to extend

the concept of sin, understood as the freely chosen rejection of God and God's ways, beyond *Homo sapiens*.

CONCLUSION

In this brief response, I have explored some of the aspects of evolutionary theodicy that currently occasion controversy. Of necessity this has been a short tour around some huge and rich issues. I hope I have at least clarified some areas for further work, in particular around the origin of disvalues in creation. I conclude where I began, with my warmest thanks to all who have made the conversations in this issue possible.

REFERENCES

- Attfield, Robin. 2006. *Creation, Evolution and Meaning*. Aldershot, UK: Ashgate.
- Berry, R. J. 2003. *God's Book of Works: The Theology and Nature of Natural Theology*. London, UK: T&T Clark/Continuum.
- Brooke, John Hedley. 2018. "Darwin and Christianity: Truth and Myth." *Zygon: Journal of Religion and Science* 53:836–849.
- Brown, William P. 2010. *The Seven Pillars of Creation: The Bible, Science, and the Ecology of Wonder*. New York, NY: Oxford University Press.
- Clayton, Philip, and Steven Knapp. 2011. *The Predicament of Belief*. New York, NY: Oxford University Press.
- . 2018. "Evolution, Contingency, and Christology." *Zygon: Journal of Religion and Science* 53:766–781.
- Corbally, Christopher, and Margaret Boone Rappaport. 2018. "Teaching Science and Religion in the Twenty-First Century: The Many Pedagogical Roles of Christopher Southgate." *Zygon: Journal of Religion and Science* 53:897–908.
- Conradie, Ernst M. 2018. "On Social Evil and Natural Evil: In Conversation with Christopher Southgate." *Zygon: Journal of Religion and Science* 53:752–765.
- Deane-Drummond, Celia. 2009. *Christ and Evolution: Wonder and Wisdom*. Minneapolis, MN: Fortress Press.
- . 2018. "Perceiving Natural Evil through the Lens of Divine Glory? A Conversation with Christopher Southgate." *Zygon: Journal of Religion and Science* 53:792–807.
- Domning, Daryl P., and Monika K. Hellwig. 2006. *Original Selfishness: Original Sin in the Light of Evolution*. Aldershot, UK: Ashgate.
- Drees, Willem B. 2018. "God, Humanity and the Cosmos: Challenging a Challenging Textbook." *Zygon: Journal of Religion and Science* 53:887–896.
- Edwards, Denis. 2018. "Christopher Southgate's Compound Theodicy: Parallel Searchings." *Zygon: Journal of Religion and Science* 53:680–690.
- Gregersen, Niels Henrik. 2001. "The Cross of Christ in an Evolutionary World." *Dialog: A Journal of Theology* 40:192–207.
- Haight, John. 2000. *God after Darwin: A Theology of Evolution*. Boulder, CO: Westview Press.
- Hoggard Creegan, Nicola. 2013. *Animal Suffering and the Problem of Evil*. New York, NY: Oxford University Press.
- . 2018. "Theodicy: A Response to Christopher Southgate." *Zygon: Journal of Religion and Science* 53:808–820.
- Hopkins, Gerard Manley. 1959. *The Sermons and Devotional Writings of Gerard Manley Hopkins*, edited by Christopher Devlin. London, UK: Oxford University Press.
- Horrell, David, Cheryl Hunt, and Christopher Southgate. 2010. *Greening Paul: Re-Reading the Apostle in an Age of Ecological Crisis*. Waco, TX: Baylor University Press.
- Lloyd, Michael. 1998. "Are Animals Fallen?" In *Animals on the Agenda: Questions about Animals for Theology and Ethics*, edited by Andrew Linzey and Dorothy Yamamoto, 147–60. London, UK: SCM Press.
- McLeish, Tom. 2014. *Faith and Wisdom in Science*. Oxford, UK: Oxford University Press.

- Messer, Neil. 2018. "Evolution and Theodicy: How (Not) to Do Science and Theology." *Zygon: Journal of Religion and Science* 53:821–835.
- Moltmann, Jürgen. 2015. *The Living God and the Fullness of Life*, translated by Margaret Kohl. Louisville, KY: Westminster John Knox Press.
- Moritz, Joshua. 2014. "Animal Suffering, Evolution, and the Origins of Evil: Toward a 'Free Creatures' Defense." *Zygon: Journal of Religion and Science* 49:348–80.
- Murphy, Nancey. 2007. "Science and the Problem of Evil: Suffering as a By-Product of a Finely Tuned Cosmos." In *Physics and Cosmology: Scientific Perspectives on the Problem of Evil in Nature*, edited by Nancey Murphy, Robert John Russell, and William R. Stoeger SJ, 131–52. Vatican City: Vatican Observatory and Berkeley, CA: Center for Theology and the Natural Sciences.
- Murphy, Nancey, Robert John Russell, and William R. Stoeger, eds. 2007. *Physics and Cosmology: Scientific Perspectives on the Problem of Evil in Nature*. Vatican City: Vatican Observatory and Berkeley, CA: Center for Theology and the Natural Sciences.
- O'Halloran, Nathan W., SJ. 2015. "Cosmic Alienation and the Origin of Evil: Rejecting the 'Only Way' Option." *Theology and Science* 13:43–63.
- Oliver, Simon. 2017. *Creation: A Guide for the Perplexed*. London, UK: Bloomsbury.
- Polkinghorne, John. 1991. *Reason and Reality: The Relationship between Science and Theology*. London, UK: SPCK.
- Robinson, Andrew. 2014. *Traces of the Trinity: Signs, Sacraments and Sharing God's Life*. Cambridge, UK: James Clarke.
- . 2018. "Creative Mutual Interaction in Action." *Zygon: Journal of Religion and Science* 53:850–864.
- Rolston, Holmes, III. 1992. "Disvalues in Nature." *The Monist* 75:250–78.
- . [1987] 2006. *Science and Religion: A Critical Survey*. Philadelphia, PA: Templeton Foundation Press.
- . 2018. "Redeeming a Cruciform Nature." *Zygon: Journal of Religion and Science* 53:739–751.
- Rosenberg, Stanley P. 2018. "Can Nature Be 'Red in Tooth and Claw' in the Thought of Augustine? The Later Invention and Misunderstanding of a Major Theologian." In *Finding Ourselves after Darwin: Conversations on the Image of God, Original Sin, and the Problem of Evil*, edited by Stanley P. Rosenberg, Michael Burdett, Michael Lloyd, and Benno van den Toren, 226–43. Grand Rapids, MI: Brazos Press.
- Russell, Robert John. 2018. "Southgate's Compound Only-Way Evolutionary Theodicy: Deep Appreciation and Further Directions." *Zygon: Journal of Religion and Science* 53:711–726.
- Sollereider, Bethany. 2018. "Exploring Old and New Paths in Theodicy." *Zygon: Journal of Religion and Science* 53:727–738.
- Southgate, Christopher. 1997. *A Love and Its Sounding: Explorations of T. S. Eliot*. Salzburg, Austria: University of Salzburg Press.
- . 2008. *The Groaning of Creation: God, Evolution and the Problem of Evil*. Louisville, KY: Westminster John Knox Press.
- . 2011. "Re-Reading Genesis, John and Job: A Christian's Response to Darwinism." *Zygon: Journal of Religion and Science* 46:365–90.
- . 2018. *Theology in a Suffering World: Glory and Longing*. Cambridge, UK: Cambridge University Press.
- Von Balthasar, Hans Urs. 1986. *The Glory of the Lord, Vol. 3, Studies in Theological Style: Lay Styles*, translated by Andrew Louth, John Saward, Martin Simon, and Rowan Williams and edited by John Riches. Edinburgh, UK: T&T Clark.
- . 1994. *Theodrama: Theological Dramatic Theory Vol. 4: The Action*, translated by Graham Harrison. San Francisco, CA: Ignatius Press.
- Wahlberg, Mats. 2015. "Was Evolution the Only Possible Way to Make Autonomous Creatures? Examination of an Argument in Evolutionary Theodicy." *International Journal for Philosophy of Religion* 77:37–51.
- Williams, Rowan. 2016. *On Augustine*. London, UK: Bloomsbury.
- Young, Frances. 2013. *God's Presence: A Contemporary Recapitulation of Early Christianity*. Cambridge, UK: Cambridge University Press.

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Monographs

Southgate, Christopher. 2018. *Theology in a Suffering World: Glory and Longing*. Cambridge: Cambridge University Press.

Horrell, David, Cheryl Hunt, and Christopher Southgate. 2010. *Greening Paul: Re-Reading the Apostle in an Age of Ecological Crisis*. Waco, TX: Baylor University Press.

Southgate, Christopher. 2008. *The Groaning of Creation: God, Evolution and the Problem of Evil*. Louisville, KY: Westminster John Knox Press.

———. 1997. *A Love and Its Sounding: Explorations of T. S. Eliot*. Salzburg: University of Salzburg Press.

Edited Books

Southgate, Christopher, ed. 2011. *God, Humanity and the Cosmos: A Textbook in Science and Religion*, 3rd ed. London: T&T Clark/Continuum. Previous editions 1999, 2005.

Horrell, David, Cheryl Hunt, Christopher Southgate, and Francesca Stavrakopoulou, eds. 2010. *Ecological Hermeneutics*. London: T&T Clark/Continuum.

Contributions to Journals

Southgate, Christopher. 2016. "Science and Religion in the UK—A Personal View on the Contemporary Scene." *Zygon: Journal of Religion and Science* 51:361–86.

———. 2015. "God's Creation Wild and Violent, and Our Care of Other Animals." *Perspectives in Science and Christian Faith* 67:245–53.

Lehman, Niles, Tess Bernhard, Brian Larson, Andrew Robinson, and Christopher Southgate. 2014. "Empirical Demonstration of Environmental Sensing in Catalytic RNA: Evolution of Interpretive Behavior at the Origins of Life." *BMC Evolutionary Biology* 14 ARTN 248 Dec 4, 2014 (online).

Southgate, Christopher. 2014. "Divine Glory in a Darwinian World." *Zygon: Journal of Religion and Science* 49:784–807.

———. 2011. "Re-Reading Genesis, John, and Job: A Christian's Response to Darwinism." *Zygon: Journal of Religion and Science* 46:365–90.

Robinson, Andrew, and Christopher Southgate. 2010. "Incarnation and Semiotics: A Theological and Anthropological Hypothesis:

Part II—Semiotics, Anthropology and Religious Transformation.” *Theology and Science* 8(3):283–302.

———. 2010. “Incarnation and Semiotics: A Theological and Anthropological Hypothesis: Part I—Incarnation and Peirce’s Taxonomy of Signs.” *Theology and Science* 8(3):265–82.

———. 2010. “Broken Symbols? Response to F. LeRon Shults.” *Zygon: Journal of Religion and Science* 45:733–38.

———. 2010. “Semiotics as a Metaphysical Framework for Christian Theology.” *Zygon: Journal of Religion and Science* 45:689–712.

Robinson, Andrew, Christopher Southgate, and Terrence Deacon. 2010. “Discussion of the Conceptual Basis of Semiotics.” *Zygon: Journal of Religion and Science* 45:409–18.

Southgate, Christopher, and Andrew Robinson. 2010. “Interpretation and the Origin of Life.” *Zygon: Journal of Religion and Science* 45:345–60.

Robinson, Andrew, and Christopher Southgate. 2010. “Introduction: Toward a Metaphysics of Meaning.” *Zygon: Journal of Religion and Science* 45:339–44.

Lui, Leong Ting, Zhao Yang, Andrew Robinson, and Christopher Southgate. 2010. “Interpretation and the Origin of Life.” *Biological Theory* 5(2):112–16.

Robinson, Andrew, and Christopher Southgate. 2009. “A General Interpretation of Interpretation and its Application to Origin of Life Research.” *Biology and Philosophy* 25(2):163–81.

Horrell, David, Cheryl Hunt, and Christopher Southgate. 2008. “An Environmental Mantra? Ecological Interest in Romans 8:19–23 and a Modest Proposal for its Narrative Interpretation.” *Journal of Theological Studies* 59:546–79.

———. 2008. “Appeals to the Bible in Ecotheology and Environmental Ethics.” *Studies in Christian Ethics* 21:219–38.

Southgate, Christopher. 2008. “Can God Act in the World Science Describes?” *Dialogue* 31:32–36.

———. 2006. “Not Reading Derrida in Tehran.” *Reviews in Science and Religion* 48:12–15.

———. 2002. “God and Evolutionary Evil: Theodicy in the Light of Darwinism.” *Zygon: Journal of Religion and Science* 37:803–24.

———. 2001. “Time Travel.” *Science and Spirit* 12(6):20.

Wolfenden, Richard, Lars Andersson, Paul Cullis, and Christopher Southgate. 1981. “Affinity of Amino Acid Side Chains for Solvent Water.” *Biochemistry* 20:849–55.

Wolfenden, Richard, Paul Cullis, and Christopher Southgate. 1979. "Water, Protein Folding and the Genetic Code." *Science* 206: 575–77.

Southgate, Christopher, and Henry B. F. Dixon. 1978. "Phosphonomethyl Analogues of Amino-acyl Adenylates." *Biochemical Journal* 175:461–65.

Chapters in Books

Southgate, Christopher. 2018. "Free-Process' and 'Only-Way' Arguments." In *Finding Ourselves after Darwin: Conversations on the Image of God, Original Sin, and the Problem of Evil*, edited by Stanley P. Rosenberg, Michael Burdett, Michael Lloyd, and Benno van den Toren, 293–305. Grand Rapids, MI: Brazos Press.

———. 2018. "Science and Evil." In *The History of Evil, Vol. 5*, edited by Victoria Harrison. London: Routledge.

———. 2017. "Cosmic Evolution and Evil." In *The Cambridge Companion to the Problem of Evil*, edited by Chad Meister and Paul Moser, 147–64. Cambridge: Cambridge University Press.

———. 2016. "The Orientation of Longing." In *Issues in Science and Theology: Do Emotions Shape the World?* edited by Dirk Evers, Michael Fuller, Anne Runehov, and Knut-Willy Sæther, 73–86. Dordrecht: Springer.

———. 2015. "Depth, Sign and Destiny." In *Incarnation: On the Scope and Depth of Christology*, edited by Niels Henrik Gregersen, 203–23. Minneapolis, MN: Fortress Press.

———. 2014. "Does God's Care Make Any Difference? Theological Reflection on the Suffering of Non-Human Creatures." In *Christian Faith and the Earth: Current Paths and Emerging Horizons in Ecotheology*, edited by Ernst Conradie, Sigurd Bergmann, Celia Deane-Drummond, and Denis Edwards, 97–114. London: Bloomsbury.

———. 2013. "Ecology and Natural Theology." In *The Oxford Handbook of Natural Theology*, edited by Russell ReManning, 459–74. Oxford: Oxford University Press.

———. 2012. "Looking East at Sunset." In *Inspiration in Science and Religion*, edited by Michael Fuller, 43–52. Newcastle-upon-Tyne: Cambridge Scholars Press.

Southgate, Christopher, and Heather Eaton. 2012. "Science and Theology Discourse." In *Creation and Salvation, Vol. 2*, edited by Ernst Conradie, 173–214. Zürich: LIT Verlag.

Robinson, Andrew, and Christopher Southgate. 2012. "Semiotics, Evolution and Theology." In *Darwinism and Natural Theology: Evolving*

Perspectives, edited by Andrew Robinson, 126–44. Newcastle-upon-Tyne: Cambridge Scholars Press.

Southgate, Christopher. 2011. “Parasites and Pangloss.” In *Creation, Environment and Ethics*, edited by Rachel Humphreys and Sophie Vlacos, 61–74. Newcastle-upon-Tyne: Cambridge Scholars Press.

Robinson, Andrew, and Christopher Southgate. 2009. “Intelligent Design and the Origin of Life.” In *Intelligent Faith*, edited by John Quenby and John Macdonald Smith, 49–69. Ropley, UK: O Books.

Southgate, Christopher. 2009. “The New Days of Noah?” In *Creaturely Theology*, edited by Celia Deane-Drummond and David Clough, 249–65. London: SCM Press.

———. 2008. “Protological and Eschatological Vegetarianism.” In *Eating and Believing*, edited by Rachel Muers and David Grumett, 247–65. London: T&T Clark/Continuum.

———. 2008. “Kenosis—Divine and Human—as a Resource in Ecological Theology.” In *Creation’s Diversity: Voices from Theology and Science, Issues in Science and Theology 5*, edited by Willem B. Drees, Hubert Meisinger, and Taede A. Smedes, 58–77. London: T&T Clark/Continuum.

———. 2008. “Creation as ‘Very Good’ and ‘Groaning in Travail’: An Exploration in Evolutionary Theodicy.” In *The Evolution of Evil*, edited by Gaymon Bennett, Martinez Hewlett, Ted Peters, and Robert Russell, 53–85. Göttingen: Vandenhoeck and Ruprecht.

Southgate, Christopher, and Andrew Robinson. 2007. “Varieties of Theodicy: An Exploration of Responses to the Problem of Evil Based on a Typology of Good–Harm Analyses.” In *Physics and Cosmology: Scientific Perspectives on the Problem of Evil in Nature*, edited by Nancey Murphy, Robert J. Russell, and William Stoeger, SJ, 67–90. Berkeley, CA and Vatican City: CTNS and Vatican Observatory.

Southgate, Christopher. 2006. “Stewardship and Its Competitors.” In *Stewardship: An Environmental Handbook*, edited by R. J. Berry, 185–95. Edinburgh: T&T Clark International.

———. 2006. “From the Bison at Niaux to the Kyoto Protocol: A Journey in Human Nature.” In *The Evolution of Rationality: Festschrift in Honour of J. Wentzel van Huyssteen*, edited by F. LeRon Shults, 183–96. Grand Rapids, MI: Eerdmans.

———. 2004. “Environmental Ethics and the Science–Religion Debate: A British Perspective on Barbour.” In *50 Years in Science and Religion: Ian Barbour and his Legacy*, edited by Robert J. Russell, 239–48. Aldershot, UK: Ashgate.

———. 2002. “Introduction to Environmental Ethics.” In *Bioethics for Scientists*, edited by John Bryant, Linda Baggott la Velle, and John Searle, 39–56. Chichester, UK: Wiley.

———. 2002. "The Use of the Rain-Forest as a Test-Case in Environmental Ethics." In *Bioethics for Scientists*, edited by John Bryant, Linda Baggott la Velle, and John Searle, 57–72. Chichester, UK: Wiley.

Southgate, Christopher, and Alex Aylward. 2002. "Environmental Ethics: Further Case-Studies." In *Bioethics for Scientists*, edited by John Bryant, Linda Baggott la Velle, and John Searle, 73–84. Chichester, UK: Wiley.

Southgate, Christopher. 1999. "Reconsidering Phlebas: Faith in the Life and Work of T. S. Eliot." In *English Literature, Theology and the Curriculum*, edited by Liam Gearon, 221–28. London: Cassell.

Books of Poetry

Southgate, Christopher. 2017. *Rain Falling by the River: New and Selected Poems of the Spirit*. Norwich, UK: Canterbury Press.

———. 2016. *Chasing the Raven*. Nottingham, UK: Shoestring Press.

———. 2012. *A Gash in the Darkness*. Nottingham, UK: Shoestring Press.

———. 2006. *Easing the Gravity Field: Poems of Science and Love*. Nottingham, UK: Shoestring Press.

———. 2000. *Beyond the Bitter Wind: Poems 1982–2000*. Nottingham, UK: Shoestring Press.

Southgate, Christopher, ed. 1992. *Stonechat: Ten Devon Poets*. Exeter: Taxus Press.

Southgate, Christopher. 1991. *Annotations: Selected Early Poems*. Chagford, UK: Parfordwood.

Beeson, Mark, and Christopher Southgate. 1989. *Landscape or Land? Poems for Devon*. Manaton, UK: Wheal Press.