

## On emergence and eschatology: something has to give ...

*Daniël P Veldsman*

Department of Dogmatics and Christian Ethics, Faculty of Theology,  
University of Pretoria, Pretoria, South Africa

### Introductory remarks

More than six years ago, the Australian physicist, Paul Davies (2006:xiiff), wrote that, for emergence to make a difference in our understanding of how the world works, *something has to give* within existing theory. *Something has to give* that will bring about a dramatic paradigm shift within physics.<sup>1</sup> And where physics leads, he adds, chemistry and biology are likely to follow. Davies' remark on 'something has to give' also holds true for theological reflection<sup>2</sup> that takes the phenomenon of emergence seriously within the framework of contemporary science-theology discourses – especially with regard to eschatology.

In the wake of addressing the phenomenon of emergence within theological reflection, much 'has already been given'. It most probably represents one of the most profound and far-reaching turbulent challenges posed by the natural sciences to Christianity for theological reflection – deep and far-reaching challenges of almost the same magnitude as the 19th century 'Death of God' announcement by the German philosopher, Friedrich Nietzsche, in both his *Die fröhliche Wissenschaft* and his *Also sprach Zarathustra*.

In a sense, during the 21st century, emergentist theories announced a double death: With regard to theology, the death of all theological chauvinism, and with regard to the natural sciences, the death of methodological reductionism. Before indicating where this article is heading, a short remark on the 'double death' must suffice to set the framework for the discussion.

The **first** 'death', namely that of all theological chauvinism, follows from a self-understanding of being human as an (emergent) product of biological and cultural evolution. It no longer endures hermeneutical reflection that claims to stand above the march of history. This 'given point' was adopted. No person has direct and immediate access anymore (and anywhere) to timeless truths. This 'given point' is hermeneutical work in progress! In its wake we find the funerals of atemporal understandings of God and the hearse of static views of divine nature.

A radical revision of our anthropological views and our understandings of the epistemic agent is called for.<sup>3</sup> The **second** 'death', namely that of methodological reductionism, has to do with the possibility of explaining all phenomena in the natural world (such as 'life', for example) in terms of the objects and laws of physics.<sup>4</sup> A comprehensive, all-compassing explanation is out of the question. Consequently, the longed for and pursued explanatory 'theory of everything' does not reside peacefully in the grasp of the natural sciences. Furthermore, for some natural scientists, making dogmatic statements, such as "Life has no purpose" or on the "emptiness of all religion", is to disregard the limits of their scientific discourses and methodologies. These kinds of statements tell us more about the personal ideological preferences of the scientist than about the reality we are trying to understand.

Given these two brief hermeneutical memorials of theological chauvinism and methodological reductionism as background and framework, the questions that I would like to address, are as follows: Emergentist theories: What precisely are we talking about? Is it, after all, sufficiently important to be the subject

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<sup>1</sup> If strong emergence would rule the day, the subject is poised for a dramatic paradigm shift (Davies 2006:xii-iii). In physics it would transform the status of the subjects within the hierarchy that it supports; in biology it would open the way to biological laws that supplement the laws of physics, perhaps enabling scientists to pin down exactly what it is that distinguishes living matter from non-living matter. According to Davies (2006: xiii), the greatest impact will be in consciousness studies. Also see Clayton's (2006:1) brief exposition of the impact of emergence on the natural sciences.

<sup>2</sup> This can already be seen with regard to revisionary viewpoints in theological, ethical and philosophical reflection. To give but one example: In *The Moral Nature of the Universe* (1996), George Ellis and Nancy Murphy argue for a moral dimension to the universe that can be abbreviated to: Ethical laws can stand next to physical laws.

<sup>3</sup> See – for example – the excellent collection of essays in *The end of the world and the ends of gods* (2000) of which John Polkinghorne and Michael Welker are the editors. Many of these issues are discussed in these essays on eschatology in the natural sciences, cultural sciences and ethics.

<sup>4</sup> The so-called death of methodological reductionism, however, does not affect everyday scientific practice. Clayton (2006:1) explains that this is a philosophical position and that, for the sciences, it is business as usual, that is, to practise science still means to try and explain phenomena in terms of their constituent parts and underlying laws.

of discussion? Is it not merely a bold hypothesis not worthy of spending reflective time on? Or is it perhaps a fad, as Antje Jackelen (2006:624) labels it? *No* to the latter: It is no fad; *Yes* to the former: It is very important.

I would first like to sketch a very general, broad overview of emergence. Secondly, I would want to discuss briefly the most recent contributions of two theologians, John Russel and Klaus Nürmberger on eschatology within the science-theology framework. Lastly, I would want to draw a number of tentative conclusions from my overview and the connection between emergence and eschatology. Especially, the importance of addressing this connection should not be underestimated, since it entails a paradigm shift of enormous propensity. Indeed: ‘Some things’ have to give. Emergence and eschatology, and their connection, most probably represent two of the most difficult topics to explore within the current ongoing lively and intense science-religion debate.

The difficulty and open-endedness of the two topics can be best captured in the following two questions: What are we talking about when we are referring to ‘Emergence’? It depends on who you ask.<sup>5</sup> And eschatology? It depends on who you are. These evading and inconclusive answers are a soft and cautious indication of the turbulent character and nature of the discourses on emergence and eschatology. I will now turn to them.

### **Emergence: the ‘in-between’ whole story or simply ‘something has to give’!**

Emergence, according to Davies (2006:xii), has a curious status, since it has a long history in philosophy,<sup>6</sup> but in the natural sciences, it is a recent and tentative concept. Many questions are prompted by this view. I restrict myself to the two most obvious questions, namely: What is meant by the concept? and How is it understood and used within various fields?

In short, the concept, *emergence*, is a claim about the nature of the evolutionary process; about what natural history has produced (Clayton 2006:675). According to Paul Davies (2006:x; cf Clayton 2006:4-5; cf. Gregersen 2006:282), in his *Problems of life and mind* (1875), George Henry Lewes was the first person to have used the term, emergence, to define a philosophical concept, that is, the recognition that in physical systems the whole is often more than the sum of its parts.<sup>7</sup> At each level of complexity, new and often surprising qualities<sup>8</sup> emerge that cannot – at least in a straightforward way – be attributed to known properties of the constituents (Davies 2006:x). Or, as Clayton (2003:256) clearly and neatly formulates:

The term emergence refers to the appearance of a new property in an evolving system or entity. As the system changes over time, a new property that was not present before comes to be associated with it, often through an increase in complexity. Emergent phenomena are not fully reducible (in a causal, explanatory, or ontological sense) to the lower-level phenomena from which they arise. Emergence thus represents the hypothesis that the whole story (in science and perhaps in religion) can only be told by multiple causal stories at multiple levels.

The ‘whole story’<sup>9</sup> is best found – in reaction to earlier mistaken reductionist-physicalist and dualist interpretations – in a space in-between,<sup>10</sup> which describes more accurately the structural features of the natural world as they have unfolded (cf. Clayton 2006b:677). In a discussion of Charbel el-Hani and Antonia Pereira’s definition of emergence, Clayton (2006:2ff; cf. McGrath 2009:207-8) modifies their description of the four

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<sup>5</sup> Although I have broadened the question by connecting it to eschatology, Ross McKenzie (2007:2) posed the original question in his short review of *The re-emergence of emergence* (Davies & Clayton, 2006).

<sup>6</sup> See the discussion by Clayton (2006:5) of the prehistory of the emergence concept that can be traced back – yes, you might have guessed! – to Aristotle and his principle of entelechy, that is, the principle of growth within organisms, as well as the 3rd-century Plotinus and his doctrine of emanation. Gregersen (2006:282), in his formulation that the meaning of a word is more than the sum of the letters, refers to Plato’s philosophical viewpoint of the organised whole as being more than the sum of its parts – each taken individually. So does Davies (2006:x) in his discussion of the late 19th and 20th century British School of Philosophy and its followers’ understandings of emergence in the fields of chemistry and biology.

<sup>7</sup> Although the basic formulation is quite clear, i.e. that in complex systems the outcome is more than the sum of the parts, Clayton (2006:4) explains that the difficult part – both empirically and conceptually – is ascertaining when and why the complexity is sufficient to produce the new effects.

<sup>8</sup> A few examples can make this point very clear: Water consisting of hydrogen and oxygen; salt (sodium chloride) consisting of sodium and chlorine. McGrath (2009:206) and Gregersen (2006:282) also add interesting examples: Gold; the behaviour of chimpanzees and bonobos; and bird flocking.

<sup>9</sup> Although Jackelén (2006:623-4) does not support the so-called “whole-story” emphasis of Clayton, she does, however, affirm that she likes the concept of emergence, given its promising epistemological qualities, since it offers an impressive explanatory potential. In her own characteristic existential-emotive manner, she states: “Emergence comes with a flavour of spontaneity, novelty, surprise and excitement” (Jackelén 2006:624).

<sup>10</sup> In her discussion of Clayton’s viewpoint on emergence, Jackelén (2006:625) calls his approach an invite to the victorious golden path between physicalism and dualism!

features that are associated with the concept. He finally settles for ontological monism<sup>11</sup>; property emergence;<sup>12</sup> irreducibility of emergence<sup>13</sup>; and downward causation.<sup>13</sup>

Contemporary emergence theories fall into two broad categories, namely weak and strong.<sup>14</sup> Strong emergence, also referred to as *ontological emergence*, argues that genuinely new causal agents or causal processes come into existence during the course of evolutionary history. Something new has thus emerged, which is neither reducible to, nor determined by more basic features – therefore ontological emergence. Weak emergence, also referred to as *epistemological emergence*, argues that, as new patterns emerge, the fundamental causal processes (on microphysical level) ultimately remain physical.<sup>15</sup> Our currently limited state of knowledge blinds us to recognise new manifestations of the same fundamental processes in these emerging patterns – therefore epistemological emergence.

Perhaps the so-called ‘in-between whole story’ can be best pictured (cf McGrath 2009:208) if one takes Harold Morowitz’s taxonomy of emergence in his *The Emergence of Everything: how the world became complex* (2002), as an interesting representation:

Stages 1-7:	Domain of Physical Sciences [large-scale cosmic structuring » formation of stars (rich in hydrogen and helium) » nucleosynthesis and creation of heavier elements » formation of solar systems and evolution of planets with geospheres]
Transitional 8:	Emergence of Biosphere [= self-replicating protocells and competition for resources]. According to Morowitz, the world now becomes Darwinian
Stages 9-20:	Biological [prokaryotes and eukaryotes » multicellular organisms » evolution of mammals]
Transitional 21:	Appearance of Primate Ancestors
Stages 22-28:	Cultural Developments [emergence of societies and the evolution of language, philosophy and spirituality].

Surely, Morowitz’s taxonomy of emergence could be challenged. That, however, is not the point of the argument at present. Of importance are the general principles that lie behind it (cf. McGrath 2009:209). Of even greater importance, is the awareness that its acceptance entails much more than methodological convenience. The ‘much more’ – that is, for emergence to make a difference in our understanding of how the world works – something indeed has to give within existing theory as Davies alleges.

This is the focal point that I would like to pursue with regard to theological reflection and, more specifically with regard to eschatological reflection. What has *to give (or has already given)* within existing eschatological understandings if it has been already stated that emergentists theories announced the death of all theological chauvinism?

### Eschatology

We knew of old that God was so wise that He could make all things; but behold, He is so much wiser than even that, that He could make all things make themselves (Charles Kingsley, Lecture of 1871).<sup>16</sup>

For very good reasons, eschatology<sup>17</sup> has become one of the most contentious topics in theological reflection, especially within the context of theology-science discourses and, more particularly, in the challenges that come from the field of cosmology. Is any constructive dialogue between the two at all possible: Possible between the natural sciences’ ‘freeze or fry’ linear predictions and the Christian eschatological vision of a ‘new heaven and earth’?

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<sup>11</sup> Whereas El-Hani and Pereira refers to Ontological physicalism, Clayton (2006:2) modifies it to ontological monism. He comments that, although it correctly expresses the anti-dualistic thrust of emergent theories, it undercuts the claim that physics is the fundamental discipline in terms of which all others must be expressed. Clayton simply adds that we should not assume that the entities postulated by physics complete the inventory of what exists. In this qualified sense, he states that emergentists should be monists.

<sup>12</sup> It refers to the fact that genuinely novel properties emerge in these complex systems.

<sup>13</sup> In reference to Timothy O’Connor, Clayton (2006:4) states that downward causation of “whole-part influence” is the most important distinctive feature of strong emergence but, at the same time, it constitutes its greatest challenge.

<sup>14</sup> Weak and strong refer to the degree of emergence and not the argumentative quality of the position in question (Clayton 2006:7). Also see his good exposition of the four varieties of emergence (Clayton 2006b:677).

<sup>15</sup> See Clayton (2006:8) who quotes the clear description by Silberstein and McGreever of the important difference between the two.

<sup>16</sup> Twice (!) quoted by McGrath (2009:210; 218) from the 1871 lecture by Charles Kingsley, “The natural theology of the future”, which was published in the Westminster Sermons in 1874.

<sup>17</sup> The term, eschatology, only became an established concept in Protestant theology in the 19th century. According to Gerhard Sauter (1996:136), Philipp Heinrich Friedlieb was the first to use the term. He described the final chapter of his Dogmatics (1644) as: “The last things”. Abraham Calov also named the last part of his Dogmatics “Eschatologia Sacra” (1677), discussing the so-called “last things”, such as death, judgement, hell and heaven; and eternal life. Traditionally these themes were referred to in Latin as “de novissimis”.

At the same time, important shifts have also taken place within mainstream Western theological-eschatological reflection during the last century.<sup>18</sup> Consistent Eschatology (Johannes Weiss, Albert Schweitzer); Realised Eschatology (Charles Dodd); and Existential Eschatology (Bultmann) opened up and broadened eschatological reflection, turning eschatology – as Hans Urs von Balthasar (1957:403) so aptly remarked and elaborated upon in reference to Troeltsch – into the weather bureau of theological reflection:

Eschatology is the centre in which [the] theological weather of our times develops. It is in eschatology that the storms that threaten the whole landscape, capable of either unleashing destructive hail or refreshing [showers] and rendering the whole landscape fruitful. If Troeltsch's comment, that the "bureau of eschatology is generally closed today" was true for the liberalism of the 19th century it is, on the other hand, true that the same office has been working overtime since the turn of the century.<sup>19</sup>

In an oversimplified manner, the shifts that took place in the 'office that has been working overtime', could best be captured in the following brief description: From an understanding of eschatology in the 18th century as merely a heading for the last chapter in Dogmatics (Friedlieb; Calov) to a concept of salvation (Gerhard; Keckermann)<sup>20</sup> to posing boundary questions (Schleiermacher; Barth; Bultmann). The present outcome for theological-eschatological reflection is crucial: Eschatology is no longer treated as the so-called "last things" (*ta eschata*)<sup>21</sup> and consigned to the last chapter of dogmatic textbooks, but all theological reflection has become eschatological.<sup>22</sup> However, this hermeneutical gain subsequently simultaneously poses both a warning and a deep challenge, namely not to merely reduce theological-eschatological reflection to the realm of inner self-consciousness. Posing boundary questions cannot ignore our physical existence in our vast universe and the entanglement of the 'what?' and 'how?' and 'why?' of our interpretative endeavours.

Two such recent interpretative endeavours can be found in the contributions of (1) Robert John Russel, the Ian Barbour Professor of Theology and Science in residence, the graduate Theological Union, Berkeley, California, and the founder and Director of the Center for Theology and the Natural Sciences; and (2) the emeritus theologian, Klaus Nürnberger, from the University of KwaZulu-Natal, South Africa. Both scholars engage in a constructive dialogue between contemporary science and theological reflection. For me the most important point of interest will be to see in which manner their eschatologies make sense of the concept of emergence within their viewpoints – or, put differently, as a negative question: What 'has already given' in these eschatological viewpoints?

### *Robert John Russel*

In three of his latest publications, Russel (2008; 2012a; 2012b) seeks in his approach – characterised as a 'robust eschatology' and described as the Method of Creative Mutual Interaction (MCMI) – to combine, within a cosmological horizon, future hope for a universal transformation of the world with the present realisation of that hope in the world (Russel 2012b:4). For him the cosmological challenge represents the 'hardest case' for eschatology! It is a case presented by scientific cosmology, which has undergone deep-probing developments, calling forth 'dysteleological' readings by scientists and theologians alike. Russel (2012b:7) refers to Steven Weinberg's remarks on the pointlessness of creation, as an example of a scientist's pessimistic view and, at the same time, as an example of a theologian's concern, quoting Ted Peters from his *God as Trinity* (1993), who wrote that,

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<sup>18</sup> It was a shift that was brought about by the German theologian, Albert Schweitzer who, in his *Geschichte der Leben-Jesu-Forschung* (1906; published in 1910 in English as *The quest of the historical Jesus*), brought eschatological reflection into the heart of all theological reflection. Schweitzer convincingly showed that eschatology was at the heart of Jesus' self-understanding, as well as that of the early church.

<sup>19</sup> The original German text reads as follows: "Die Eschatologie ist der 'Wetterwinkel' in der Theologie unserer Zeit. Von ihr her steigen jene Gewitter auf, die das ganze Land fruchtbar bedrohen; verhageln oder erfrischen. Wenn für den Liberalismus des 19. Jahrhunderts das Wort von Troeltsch gelten konnte: 'Das eschatologische Bureau ist meist geschlossen', so macht dieses im Gegenteil seit der Jahrhundertwende Überstunden".

<sup>20</sup> The eschatological shift from simply being "a last chapter in Dogmatics" to a concept of salvation is best represented in the works of Johann Gerhard (1582-1637) in his *Loci theologici* and by Bartholomaeus Keckermann (1571-1609) in his understanding of Dogmatics as *scientia practica*. (See Sauter (1999:1ff) for a brief discussion of the term, eschatology, and its changing nature.

<sup>21</sup> Jackelén (2006:957) gives a short exposition of three different ways in which *ta eschata* can be understood, namely as neuter plural, which refers to those questions of the future, such as death, resurrection, judgement and new creation, that is, the so-called chronological "last things"; the neuter singular, *to eschaton*, turns the focus to existential ultimate things, that is, the deepest meaning of everything; and, lastly, the masculine singular, *ho eschatos*, as represented by the person of Jesus Christ.

<sup>22</sup> Perhaps the strongest formulation of theology as eschatology can be found in the work, *Theology of Hope* by Jürgen Moltmann (1967:16), where he states: "From first to last, and not merely in the epilogue, Christianity is eschatology, is hope, forward looking and forward moving, and therefore also revolutionary and transforming the present. The eschatological is not one element of Christianity, but it is the medium of Christian faith as such".

... should the final future as forecasted by the combination of big bang cosmology and the second law of thermodynamics come to pass ... we would have proof that our faith has been in vain. It would turn out to be that there is no God, at least not the God in whom followers of Jesus have put their faith.

For Russel (2102b:9), the efforts to reduce eschatology to physical cosmology hold no genuine promise for an eschatology of 'new creation'. However, it does give us clues! There also exist various pseudo solutions to the challenge.<sup>23</sup> In an effort to avoid these latter pseudo solutions and to take up the former promising clues, Russel connects to, and combines the insights of Jürgen Moltmann ("no redemption for human beings without redemption of nature"), Denis Edwards ("God's transforming of the universe as a whole"), Ted Peters ("prolepsis tying together *futurum* and *adventus*") and Pannenberg ("the constitutive function of eschatology for the whole universe").

However, according to Russel (2102b:13), not one of them offers a detailed response to the challenge of cosmology. Russel (2012b:14) finds himself more inclined to pursue the promising insights of Polkinghorne, captured in the key statement that the "new creation is not a second creation *ex nihilo*, but a resurrected world created *ex vetere*". It entails both continuity and discontinuity. For the former, science offers a partial perspective, coming from special relativity, quantum mechanics, the chaos theory and thermodynamics. The so-called clues for a new creation entail relationality and holism, energy, pattern and mathematics.

And with regard to the individual identities of persons through the transformation, Russel (2012b:14) refers to Polkinghorne's view that it is accomplished by God in being remembered by God and re-embodied in the new creation. On this point Russel wishes to move the dialogue even further, developing what he calls his MCMI. The theological crux of Russel's (2012b:15) method can be captured in the statement that the future of the universe would have been what science predicts ('freeze' or 'fry'), had God not acted at Easter and did God not continue to act in the future. And since this is the case, we can go ahead to reconstruct eschatology in the light of science and, hopefully, come up with promising insights (Russel 2012b:15), especially with regard to the elements of continuity in the transformation of the universe.<sup>24</sup> In my opinion, Russel's MCMI can be best captured in his own formulation, when he states:

God must have created the universe with precisely those conditions and characteristics that are needed as preconditions in order to be transformable by God's new act (Russel 2012b:15).

Perhaps Russel's (2012b:15) argument will have greater clarity and be more convincing if summarised in steps.

For Russel, *Step 1* is the conviction that the laws of nature are descriptive (regulative).

*Step 2* is to claim on theological grounds that the processes of nature that science describes are the results of God's ongoing action as Creator and that their regularity is the result of God's faithfulness.

*Step 3* is the theological conviction that God is free to act in radically new ways, not only in human history, but also in the ongoing history of the universe.

*Step 4* is the conclusion that scientific predictions are right but inapplicable, since God did act in a radically new way at Easter and will continue to act to bring about the new creation (Russel 2012b:15).

In short, Russel's eschatological understanding<sup>25</sup> implies that the new creation is neither a replacement of the present creation, nor the mere working out of the natural processes of the world, but entails the radical transformation of the world by God's new act.

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<sup>23</sup> In an interesting discussion, Russel (2012b:10-11) mentions four such pseudo solutions, namely approaches in which cosmology is seen as irrelevant to eschatology (1) in a "two worlds" model of science and theology; (2) in seeing all scientific theories as provisional; (3) in granting only humanity an eschatological destiny but not the universe; and (4) in spiritual immortality, realised in God's memory of us.

<sup>24</sup> It is these very conditions and characteristics that Russel subsequently explores to shed light on the elements of continuity, focussing specifically on the relationship between time and eternity. At the same time he explores the elements of discontinuity, focussing specifically on "those physical processes that underlie such biological realities as disease, suffering, death and extinction" (Russel 2012b:16) and, at the level of physics, the second law of thermodynamics in the dissipation of closed physical systems (Russel 2012b:16). Russel furthermore refers to our experienced form of temporality that is radically marred by the loss of the present into the past and the unavailability of the future in the present. The point is: that he focuses on those aspects of creation that we expect not be part of the new creation – such as natural evil.

<sup>25</sup> In his *Eschatology and entropy: an alternative to Robert John Russel's proposal*, the South African theologian, Klaus Nürnberger (2012), discusses Russel's approach critically, claiming that Russel does not succeed to resolve the clash between traditional

To learn to accept what God really does and not what we wish God would do is, in my opinion, the most basic caution from which Nürnberger (2012:975; 981, 988) constructs his eschatological understanding – from an experiential realistic perspective in which he wants to become ‘a scientist to the scientists’.<sup>26</sup> And his understanding has to be articulated from best science and best theology of our day!<sup>27</sup> It finds expression in an understanding of biblical faith – just like everything else in the world – as an emergent and evolving phenomenon, used by God to link us up with God (Nürnberger 2012:992).

In his *Eschatology and entropy: an alternative to Robert John Russel’s proposal*, Nürnberger (2012:970ff) argues that biblical future expectations were redemptive responses to changing human needs when viewed from an historical-critical perspective. It was within periods of suffering in post-exilic times that apocalyptic visions were formulated (Nürnberger 2012:979ff). These visions – born within a pre-scientific world view – became obsolete and have since proved to be untenable, for the following reason:

What does it help to proclaim the immanence of a glorious “kingdom of God” or the apocalyptic transformation of this world into a world without entropy, suffering and death when, in fact, this has not happened for two millennia and if it is unlikely to materialise in the future? (Nürnberger 2012:981).

Therefore, for Nürnberger, our task as theologians is not to defend outdated world-view assumptions. The expectation of a new creation without evil, suffering and death is not constitutive for the substantive content of the biblical message as such. These very expectations must be reconceptualised – that is, we must do for our times what the biblical authors (such as Paul and John to name but two) did for theirs in terms of best contemporary insights and in line with a dynamic reading of the biblical witness.

What does this reconceptualisation entail in contemporary ‘best faith’ and ‘best science’ terms? According to Nürnberger (2012:988ff.), God is to be understood as the transcendent Source and Destiny of reality as such and as a whole. The works of God – that is, God’s creative and redemptive activity, are manifested through God’s creation. The same implies for God’s wisdom that is manifested in genuine human insight. In scientific terms this – in Nürnberger’s (2012:988) own words – means that:

... God utilises the energy that makes up the substance of the universe, the regularities according to which it functions and the undetermined potentials that make it flexible enough to allow intentionality and agency to manifest themselves.

God does not bypass cosmic reality! God’s activity is reflected in the actual dynamics of the world process as explored by the sciences.<sup>28</sup> How then are the biblical future expectations to be reconceptualised? Their character is to be expressed in terms of the divine demand for human righteousness and the transformation of the world is to be understood in terms of God’s vision of comprehensive wellbeing. For Nürnberger (2012:989), the constitutive and indispensable assumption of the Christian faith is the affirmation of the proclamation<sup>29</sup> and enactment of Jesus of Nazareth of the God of Israel as a God of redemption. It opened up the new life of Christ, in fellowship with God, to universal participation within the inclusive realm of a new humanity (Nürnberger 2012:989). For this reason, it could, according to Nürnberger (2012:989), be stated that:

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eschatology and the theory of entropy. According to Nürnberger (2012:971), Russel assumes that theology and science are based on contradictory, yet equally valid, metaphysical assumptions, each one capable of questioning, and impacting on the other. Nürnberger (2012:978ff) takes his vantage point from historical-critical analyses of the biblical future expectations and, according to him, these expectations were redemptive responses to changing human needs. They found expression in apocalyptic visions and today these very visions are no longer tenable. For Nürnberger (2012:980ff;988ff), the expectation of a new creation without evil, suffering and death is not constitutive for the substantive content of the biblical message as such. In Russel’s (2012b:17ff) response to Nürnberger, he refutes the claim that he believes that science and theology are based on contradictory metaphysical assumptions. On the contrary, the sciences are based on methodological naturalism and that – according to Russel – is metaphysically neutral. The conflict for Russel is rather one of an epistemic nature between scientific predictions and New Testament hopes.

<sup>26</sup> This is Nürnberger’s (2012:972;cf. 981) basic stance in reference to, and as reformulation of, 1 Cor. 9:15-23.

<sup>27</sup> In Nürnberger’s (2012:971) own words: “Faith needs ‘best science’ to become credible, science needs ‘best faith’ to become responsible”.

<sup>28</sup> This implies that God is the Source and Destiny of all levels of emergence, that is, from the subatomic to the physical, chemical, biological, neurological and social levels (Nürnberger 2012:974).

<sup>29</sup> The cross of Christ represents the pivot of the proclamation since – for Nürnberger (2012:989) – it was the “prototypical manifestation of the self-giving action of God manifesting itself in the fate of God’s messianic representative”. Furthermore, on the basis of this proclamation and invitation, faith discerns that it is the sacrificial commitment of God that enables and empowers the cosmic process as such and as a whole (Nürnberger 2012:989).

The assumption of God's sacrificially creative and redemptive acceptance of the unacceptable does not contradict the entropic and evolutionary process as described by science, yet it provides meaning, vision and motivation to the community of believers precisely in times of hardship and frustration.

Nürnberger (2012:989) thus understands the destructive force of entropy as the price that God pays for having the energy needed for the world to exist; the laws of nature for having a functioning cosmic process; death for having living organisms; and human depravity for having a creature endowed with intentionality and agency (Nürnberger 2012:989-90).

And eternal life? Eternal life can only be conceptualised as the "life of God" (Nürnberger 2012:990) and entails for us as humans authentic human life, that is, participation in God's creative and redemptive project.<sup>30</sup> In his own concluding words:

... [M]y individual life, like all life on earth, emerged from God's creative and redemptive project and will re-emerge into God's creative and redemptive project. It derives its uniqueness, dignity and infinite preciousness from its participation in the 'life of God', rather than from any excellence, competence or disposition of its spiritual nature (Nürnberger 2012:991).

In conclusion, Nürnberger (2012:991-2) addresses the biblical expectations of a transformed world. For him it is best understood and expressed with the metaphor of God's vision of comprehensive optimal wellbeing of the whole human being, and every human being in the context of the comprehensive optimal wellbeing of their entire social and natural environments. This utopian vision translates into an active concern for any deficiency in wellbeing in any dimension of life. It is like a shifting horizon that, as we approach it, opens up ever new vistas, challenges and opportunities.

## Conclusion

What 'has given' in eschatological reflection?<sup>31</sup> Both eschatological perspectives of Russel and Nürnberger respectively – in the light of emergentist and cosmological theories – make us pause to ponder. Both unearth the numerous, far-reaching and deep problems that stream from the eschatological reflective fountain within the science-theology hermeneutical framework. To ponder and to deliberate; to hermeneutically weigh our eschatological formulations in a post-chauvinist reflective context; and to discern whether they are found not to be too light is the challenge!

Both theologians – more or less – radically challenge us to address the conceptual inflation that has set in much earlier, as well as the contemporary eschatological reflection in the light of emergentist theories. I did not endeavour to address all the implicit and explicit issues that surfaced along the 'Russel-Nürnberger way', but rather to selectively focus on but one aspect of the emergence-eschatology connection and its revision, namely that of purpose. In my opinion, the question of 'purpose' represents a very basic starter question for making sense of "what has given" in our revised eschatological perspectives.

On the one *interpretative side*, most of us will at least agree that an inner *telos* or purpose does not present itself empirically within creation. We will agree that it is a futile exercise to locate purpose, as well as value, within creation. The eschatological approaches of both Russel and Nürnberger confirm this implicitly, as well as explicitly. On the other *adventurous side*, emergentist theories do present us, in a new surprising way, with a serious challenge pertaining to the existential meaning of life as if, and note clearly, as if it poses a newly configured invitation (as clues) to reconsider our questions on the meaning of life; on its *telos*. It is an invitation – and physically nothing more – to consider the idea that the whole is often more than the sum of its parts; to "in-between" consider that the whole 'meaning of life' is indeed more than the sum of its physicalistic parts.

Furthermore, that new properties, which were not present before, have come to be associated with it, often through an increase in complexity! Also, that these very new properties entail the following features – as mentioned earlier (see page 3): The entities, postulated by physics, do not complete the inventory of what exist (ontological monism); genuinely novel properties do emerge in these complex systems; these properties are irreducible to the lower-level phenomena from which they emerge; and downward causation presents us with the greatest challenge!

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<sup>30</sup> On a very emphatic pastoral note, Nürnberger (2012:991) states: "You can hand over your life to the very God who had once entrusted it to you and who had blessed it with God's grace. Having been part of the ongoing 'life of God', its cosmic significance – sometimes even conceptualised as the 'memory of God' – can never be lost".

<sup>31</sup> The introductory question, "What has given?", refers back to the remark by Paul Davies that, if emergence is taken seriously, it will call for revisionary reflection in various fields.

For me, this greatest challenge of the incomplete inventory of what exists; its novelties; its irreducibility all (imaginary) spring forth (or begin with) and, are captured within the echo of creation of 'it is good'.

Purpose, directionality and value must be found – from a Christian perspective<sup>32</sup> – where it is stated that it is 'very good' (Gen. 1:31). What is 'good' and 'says who' necessitate closer clarification. The 'good' (from an evolutionary perspective) is the emerged 'good', namely:

... the creation is good in its propensity to give rise to [the] great values of beauty, diversity, complexity and ingenuity of evolutionary strategy. It is also good because it is the Lord's ... (Southgate 2008:15).

The 'says who' of the 'good' turns our (conscious) reflective attention to the historical biblical witness of God as the creator. But actually an evolved God who, within God's historical involvement and thus ongoing creation, emerged as both Creator *and* Redeemer (what Nürnberger calls God as the transcendent Source and Destiny of reality as such and as a whole). And, given the multi-various specificities of the historical involvement and its witnesses and the emerged testimonies, it invites us to look and listen backwards ('good') and forwards (new heaven and earth) and, while looking and listening, that is, interpreting evolutionary processes, invites us (interpretatively and imaginatively) to respond constructively to the open '*telos* challenge' of addressing the many multidimensional questions of continuity and discontinuity, as well as of ultimate (eschatological) meaning!

The Big Bang [Theory] has given all of creation an ongoing and emerging future; an open future that, according to Ted Peters (Peters & Hewlett 2008:121), builds its dynamism, contingency, self-organisation and freedom into physical reality. In his own words:

The future God built into the initial conditions of the big bang included sufficient openness to make possible the evolution from inanimate matter to life and eventually to conscious life. The bestowal of this kind of future is the bestowal to reality of the possibility to become something it had never been before (Peters & Hewlett 2008:121).

Apart from openness as the character of the future of creation, it is also characterised as 'new', that is, as fulfilment of the 'not yet'. At this point – if we take Nürnberger's caution, that we have to learn to accept what God really does, not what we wish God would do, seriously – the future turns, in my opinion, to *adventus* and it turns the believer as an existential beggar<sup>33</sup> into an adventurer!

How the adventurer is to understand, interpret and confess the meaning of a resurrected world *ex vetere* ('out of what has come before', as Russel formulated it in following Polkinghorne), will incessantly evade our interpretative grasp. This is a physical given of our terminal epistemic condition as historical beings before God. Or, simply formulated in hermeneutical terms, the acknowledgement of the death of all theological chauvinism (see introductory remarks).

However, we will not cease being 'more than just emergent consciousness', that is, as emerged persons with the most sophisticated central nervous system and, simultaneously, as the most vulnerable of all God's handmade creatures, to continuously and passionately pursue, in all manners possible, the faintest of clues with regard to its eschatological consummation. Its ultimate existential meaning (that is, of its *telos*) is not built-in into the matter that the universe is made of, nor is it present within the very fibre of life. It is imparted. It comes from past witnesses who say that it lies within the Creator and Redeemer – God. In God's imagination. Its meaning is made possible by the future that God has given creation, but its ultimate meaning lies hidden in God's *adventus* – the ultimate emergence of the final 'whole of wholes'.

For me – and this is the direction that I would pursue as my perspective of the final 'whole of the whole' – it would come from the following argument, presented as brief notes: If all theological reflection is then to be understood as eschatological in nature, and the core of the biblical message is that God is love, then follows: If the God of creation is a God of love, then a new understanding of *creation ex nihilo* is of the utmost directional importance. Not as a never-ending (Greek-infused) debate on whether creation emerged from pre-existent matter or not, but rather as an imparted message, namely that 'nothing' external to God moved God to create – but that is God's love. God's love moved God to create. Nothing else.

God lovingly created 'out of nothing' external to Godself, all of creation. Furthermore, if human love then can be regarded, for example in the Song of Songs, "to be even stronger than death" (8:6) and we find in the cross and resurrection an expression of God's love that discloses itself as stronger than death, then it follows

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<sup>32</sup> I did not take the Christian perspective in my interpretative choice to represent an exclusive hermeneutical stance. I take, for example, the message of the cross and resurrection – in its dialectic connectedness – to imply that: If the reach of the event of the cross stretches over all of creation, the message of resurrection includes all of creation.

<sup>33</sup> My formulation is a soft hermeneutical abuse of Luther's emphasis on believers as "nothing-more-than-beggars" before God.

that God's love will also determine its eventual (emerged) outcome (that is, the 'whole story' of individual and cosmological eschatology) with the same mysterious dimensions as its physical origin.

To conclude, I would like to repeat my initial two questions: What are we talking about when we are referring to Emergence? I basically only asked Philip Clayton, Harold Morowitz and Paul Davies. There is really a whole lot more to be said and to be explored. And eschatology? What is it? It still depends on who you are!<sup>34</sup> In relation to emergence, I see it as an imparted invitation to continuously reflect on why there is something and not nothing. An invitation to reflect on why the present emerged something is not all that is to be. No, there are in-between spaces in the wake of emergentist theories, which opened up 'what-are-giving' directions for exploring exciting new ways of making sense of the natural sciences' 'freeze or fry' linear predictions and the Christian eschatological vision of a 'new heaven and earth'. In short: Of the ultimate emerged good of God's creation.

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<sup>34</sup> In very general terms, I would like to formulate it as follows: It is determined by your cultural-contextual response to the whispers (on meaning) of creation and the ongoing incomplete groaning of creation: What you say (claim) you have heard and seen; what you say (claim) you have not heard and not seen; your deep probing wondering if there is anything to be heard or seen after all; or your loud protest that there is really nothing to be heard or seen.

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