

NOTHING IN EVOLUTIONARY THEORY MAKES SENSE
EXCEPT IN THE LIGHT OF CREATION

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The author enters into discussion with colleagues about their comments regarding *Purpose in the Living World?* and the theory of emergent evolution. First he discusses the alleged irrationality of emergence, the intimate connection between material and living nature, and the questionability of type-laws in the manner of Dooyeweerd. He then addresses the topic of purpose in evolution and the impasse in the evolutionary debate between Dooyeweerd and Lever, colleagues at the VU University in Amsterdam. Finally he considers whether the theory of emergence is correct in its appeal to Augustine, and whether it is in agreement with the concept of theistic evolution.

I experience it as a distinct privilege that the editors of *Philosophia Reformata* were willing to dedicate the first issue of 2011 to a discussion of *Purpose in the Living World?* Seven colleagues provided inspiring commentary. My reply follows here. Since, regrettably, I cannot go into all of their arguments, I have focused on what moved the authors most deeply. But first I put an appetizer on the table, the review that Roy Clouser published in this journal in 2010.

1. *Emergence is a fact and a mystery*

Roy Clouser, emeritus professor of philosophy at The College of New Jersey, USA, discussed my work in his book review: *Purpose in the Living World?* (2010, 82-85). It is a pithy commentary.

Clouser and I have much in common. Both of us consider an evolutionary origin of biological species to be compatible with the Christian faith. We do not support the creationistic view that the Biblical creation story should be interpreted literally, and that evolution would thus be excluded. Nor do we agree with the Neo-Scholastic opinion, as propounded in Roman Catholic circles, that the human body arises evolutionarily while the soul originates from a special creation act by God. Finally, we take distance from the dualistic position of Intelligent Design, which does not exclude evolutionary descent, but which considers some traits of living organisms to be so specific that here an intelligent external cause is chosen.

On the other hand, we reject the naturalism that posits evolution as a blind mechanical process and that reduces all forms of life as inanimate matter. We also do not accept Darwinian gradualism that completely ascribes the gradual

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forward march of life from matter to mind to genetic variation and natural selection. This gradualism recognizes the increasing complexity that results from the phylogenetic process but ignores the remarkable differences that are revealed by phylogenesis, particularly between microbes, plants, animals, and human beings.

In *Purpose in the Living World?* I have elaborated my position. I suggest that evolution is more than a continuous flux of gradual adaptations. At crucial moments, emergence occurred. Dobzhansky, one of the architects of the Modern Synthesis, once described emergence as “evolutionary transcendence” (1967, 44). In the evolutionary process, entities can transcend themselves. In some entities then, new functions and abilities arise that cannot be explained from what has gone before; that is, a new way of being at a higher level becomes reality. Emergence occurred when the first unicellular organisms arose out of physical matter, and again, when multicellular life forms came into being, when plant and animal life forms presented themselves, and also when human beings took their first steps on the world stage.

Thus the concept of emergent evolution contains continuous and discontinuous elements. At the base of all developments of life lies matter, the physical organization of the world. This continues to be the case because even in living things the higher organizational levels retain a material and molecular substrate. However, in the course of time new ways of being announced themselves with discontinuous from previous functions such as cellular homeostasis, vegetative growth, sensitive feeling, logical thought, and moral acting, in which the later functions have increasingly broader substrates as their basis. A pre-biotic or pre-cellular form of life perhaps preceded a biotic or cellular form of being; one could think here of what Nobel prizewinner Walter Gilbert has named the “RNA world” (1986, 618). Be that as it may, the supervenient levels of organization have distinguished themselves ever since by possessing their own peculiar laws of a biotic, vegetative, sensitive, logical and moral etc. nature. Thus, the above-physical orderings are based on the physical order, but they cannot be explained out of this physical order. In *Purpose* I have designated all these levels as “idionomic domains,” but readers of *Philosophia Reformata* will no doubt have recognized the law-spheres (“wetskringen”) of reformational philosophy here. If we assume that this hierarchy of arrangements of being is the result of emergent evolution, as I have posited at the end of the book, then we have good reason to speak of “purpose in the living world.”

How does Clouser react? With reticence. He admits that the GTEE — the general theory of emergent evolution — is a neglected option in scientific discourse. Thus it needs to be determined whether the modal levels of being, in view of their specific qualities, did not arise earlier by a discontinuous, sudden or saltatory change instead of through a continuous series of gradual adaptations (Clouser 2010, 83). What Clouser has in mind here is not clear to me. A resumption of the discussions of biologists with paleontologists Niles Eldredge and Stephen Gould about evolution as “stasis alternating with rapid changes”? This viewpoint is now more widely accepted (Klapwijk 2008, 75-77). The point is, rather, how we are to interpret the discontinuities in the evolutio-

nary process. Do we think with Intelligent Design of intelligent interventions? Or with Gould of dialectic turning points? Or can the notion of emergence offer a solution?

Not according to Clouser. What bothers him is the central claim of GTEE. Suppose that the higher levels of organization have emerged from the lower ones; can they then still be regarded as idionomic and irreducibly new? Can they then as the result of evolutionary mechanisms not be reduced to the preceding developments? Doesn't "emerged from" mean, by definition, "caused by"? That I regard emergence as causally unexplainable, Clouser understands, for I want to maintain the non-reducible character of the levels of being. But then the question does arise: how did these emergences come into being. Certainly not, one would think, through an incidental intervention from God's side. I cite Clouser (2010, 85):

Klapwijk rightly sees that move [of Intelligent Design] as invoking a 'God of the gaps' interventionist explanation, and rejects it. But that leaves us with a theory in which 'emergence' is pure mystery. (...) It recommends belief in something that *cannot* have a cause and yet is not God.

I am grateful for Clouser's analysis. He notes a problem that others have encountered also; indeed, a problem that I wrestled with in the nineties when the concept of emergence forced itself upon me (Klapwijk 2008, 208). I agree with Clouser; to view God as cause here is unfitting, even blasphemous. He is the Creator of all things in heaven and on earth through all the ages, not a sporadic element in the causal network of all that is created.

Is the GTEE at an impasse then? Not in the least. I fear that Clouser has overlooked two points in my account. First, there is my appeal to Genesis, and to the distinction that I see there between creation and becoming. God's creation of the world in Genesis 1 precedes the becoming of the world and its creatures, as told in Genesis 2:4 onward. Then there is my appeal to Augustine and his characterization of time as a creature of God. God created "in the beginning" a becoming world in the sense that the cosmic universe, the earthly forms of life, and the world of human beings would reveal themselves subsequently in phases in a temporal process. God's creating acts thus did not result in a ready and finished product but in a dynamic reality, a world in progress. Creation is a driving force, a ground motive that propels the world from its origin to its final destination (more on this later).

This also touches upon the topic of evolution. For evolution is an intrinsic component of the temporal world, the world-in-becoming. There can only be evolution on the basis of creation. Science and faith show us the way here. Science informs us about the evolution of cosmic powers that consolidated, at crucial times, to a basis for new, emergent orderings. But science does not pose the question of what the reasons and the purposes of these processes are. Faith, on the other hand, knows that the world is on a journey; it can situate emergences as part of this journey, and see the new, idionomic domains as authentic expressions of what Calvin called the law of creation (1964, II.2.16).

I go back to Clouser's critique. Is emergence an irrational happening or an illusive mystery? To the contrary. Science is in a position to ascertain

eruptive changes in the stream of life. For even if the very moment of self-transcendence escapes from scientific explanation, cell biology, genomics, paleontology, etc. are nevertheless able to determine the result, the fact that self-transcendence occurred. They can also detect its side effects on the substrate levels. For this purpose I compared, for example, the chromosomes of chimpanzees and human beings (Klapwijk 2011, 17-18). Simultaneously I am not ashamed to admit that in the phenomenon of emergence an unfathomable mystery is hidden, in biblical language, the secret of a creation groaning in childbirth (Rom. 8:22). Without the propelling motive of creation, time would come to a halt, evolution would stagnate, emergent novelties would fail to appear, and the world would miss its final destiny.

2. *Anticipations in nature*

Theories of emergence seek an answer to the question of how, in the evolution of the cosmos and of life on earth, we can give a place to phenomena that demonstrate an unexplainable and unpredictable novelty. Often the distinction is made between strong and weak emergence. Weak emergence refers to phenomena that come forward in an evolutionary process with functions and properties that are new but not unexplainable. Thus, out of the combination of oxygen and hydrogen, water can be produced, with new properties of liquidity or ice. These properties are emergent in a weak sense, for they are new in comparison to the properties of the underlying atoms, yet they are derivable from the structural characteristics of those atoms. Thus, weak emergence is reductive. Strong emergence, on the other hand, is non-reductive. It refers to phenomena which have irreducibly new characteristics. Thus, at the origin of the earliest forms of life — perhaps extremophilic Archaeobacteria — new properties such as cellular organization, homeostasis, and reproduction manifested themselves; these properties were new in the sense that they cannot in any way be reduced to the physical reality from which they originated.

Strong emergence is non-reductive. It implies transcendence, a movement to a higher level of being with its own peculiar characteristics, laws, and possibilities for explanations. In *Purpose* I deal with strong emergence. As does John Satherley, physical chemist at the University of Liverpool, in his instructive contribution “Emergence in the Inorganic World” (2011, 32-49). He focuses on the crucial transition of material things to living organisms, a new reality that is based on and yet cannot be reduced to the physical level.

But Satherley’s view is broader. His challenging thesis is that the origin of living organisms was facilitated by the dynamic developments that already occurred hundreds of millions of years before in the universe, in our solar system, and in the chemistry of planet Earth. Here Satherley surpasses many emergentist thinkers. They ask how molecular aggregates could reorganize themselves into a unicellular, elementary form of life. Satherley also wants to know how the cosmic and physico-chemical worlds facilitated this primordial beginning of life.

Satherley illustrates his thesis with three topics: the architecture of our planet, the specific properties of water, and the double-layered structure of cell membranes. He shows that the emergence of living organisms cannot be seen as separate from what occurs in the physical nature of their habitat. His conclusion is that even the material world has been taken up into the process of emergent evolution and plays an indispensable role in the purposiveness of the ascending forms of life. I see his account largely as a reinforcement of my holistic opinions about the intrinsic coherence of life and the so-called life-world (Klapwijk 2008, ch. 11).

Within this holistic framework, Satherley raises the vexing question: how do physical and biological evolution fit together? One can see physical evolution as the basis upon which life would begin to unfold. Or, the other way around, one could posit that life took the initiative and that the developments in the physical universe just anticipated the possibilities that life would offer afterwards. They built the scaffolding upon which the emerging life could attach itself, the trellis along which the vines in the garden of life could crawl upwards.

If the concept of ‘purpose’ is to be included in our discussion of these ‘evolutions’ (i.e. physical and biological) it would seem we indeed confront a chicken-egg problematic — not only does physical evolution occur to enhance the disclosure of life but biological emergence confirms its reliance upon the ‘putting into place’ of the scaffolding that is presupposed by the biotic emergence. (Satherley 2011, 37)

Satherley speaks here of a chicken-and-egg problem: what was first, physical matter or life? If one assumes the primacy of matter, then life developed in dependence of the available physico-chemical substances. Thus, all living organisms consist for a large part of carbon, but they could perhaps also have been formed out of silicon, the abundant element just below carbon on the periodic table (Conway Morris 2003, 24). When one assumes the primacy of life, then one places the developments in the physical world in the light of life. Then one has to conclude that four billion years ago life could begin its great march forward on earth because at that time the physical conditions had adapted themselves sufficiently to the demands that life placed on them.

Satherley chooses for both points of view, no matter how contradictory that may seem; witness the “chicken and egg problematic” (2011, 48). The primacy of physical matter seems obvious, for the physical world came first. But the second option, the primacy of life, fascinates him. In his analysis of the dynamic structures of the earth, of water, and of cell membranes Satherley confronts us with impressive instances of what he calls “emergence in the inorganic world” and what I prefer to designate as “anticipations in nature” (2008, 175-177, 214, 236). Often inanimate nature is anticipating what animate nature has in store for us. I have in mind the “anthropic cosmological principle” as brought forward by Barrow and Tipler (1986); the principle refers to the fine tuning of the laws of the cosmos in favour of human life. Anticipation is also present in the structure of DNA. This structure, initially the molecular carrier of hereditary information just in unicellular organisms proved to be, billions of years later, capable of storing the genetic code of the most complex life forms

on earth, *Homo sapiens* included. Remarkable examples of anticipation we also find in the animal kingdom. Take the social instinct of ants, the lingual capacity of dolphins, and the moral behaviour of primates. These properties can be seen as anticipating human behaviour. But they are anticipating, not emerging, for something is still lacking here that is essential for the corresponding but emergent characteristics in human beings, i.e. freedom of choice and accountability.

Thus I share the duality of Satherley's view. Nature seems to be pushed from below and pulled from above. However, I wonder whether this is a chicken-and-egg problem and whether we are dealing with two equivalent options. Do we not encounter the difference between faith and science here? In the framework of the physical sciences — I put aside the life sciences, the humanities, and philosophy for the moment — we are accustomed to explain physical processes on the basis of previous developments, sometimes named “efficient causes.” (These explanations do not anticipate later developments, so-called “final causes,” for physical entities do not set purposes for themselves.) But in the context of faith our view shifts. We see the physical world as creation, as intimately related to that which transcends physical matter, a harmonious work of art, a meaningful whole. Thus we experience coherence, have impressions of purposefulness, and actually discover fingerprints of that God who is the builder of all things (Hebr. 3:3).

Hence my question to Satherley is whether purpose can be scientifically demonstrated. Is it not primarily the sensitivity of faith that permits us to speak of the intimate connection between the material and living world and of anticipatory moments in nature? A consequence of this position would probably be that all theoretical and scientific statements about meaning and purpose of life are elaborations and confirmations of what we, in the deepest sense, only know in faith.

3. *Type laws: an essentialist error*

In *Purpose* I included a critical chapter on the hidden essentialism in the philosophy of Herman Dooyeweerd, an essentialism which deprives us of insight into the evolutionary origin of biological species (Klapwijk 2008, ch. 12). Is this critique justified?

The word “essentialism” brings us close to Plato's concept of ideas, converted by Aristotle to substantial forms. With these ideas or forms, both thinkers referred to something stable and abiding, something that is the object of human intelligence and not of the senses. The forms would be the invisible and immaterial essence of the many things that we encounter in the world of sense-experience. Sensible things are individual and empirically given. But the essences would be the universal core of individual things; instead of being empirical they would be metaphysical in nature, that is to say, not known on the basis of experiences but only through theoretical intuition or intellectual insight. In this way theoretical thought grew into metaphysical speculation, detached from observational data, referring to Plato's ideal forms or Aristotle's

substantial forms as the universal standards or law-like structures that had to be the hidden basis of the individual and changeable things we observe in the world of sensory perceptions.

From antiquity on, this essentialism has left deep traces in Western culture. For centuries it gave scientists rational certainty, also in the systematic investigation of nature. It also formed a basis for the traditional dogma of the constancy of species. Until the time of Darwin.

In my view this essentialism strongly influenced Dooyeweerd's doctrine of the constancy of species. Dooyeweerd himself presents this doctrine in a different way, as an extension of the so-called theory of individuality structures, presented as a definite counterpart of Aristotle's essentialism. Whence this emphasis? Presumably Dooyeweerd felt acutely that his structures of individual things were reminiscent of Aristotle's forms of primary (individual) substances. Dooyeweerd's structures of individuality, too, aspired to be a universal standard and solid guarantee for the constant identity of individual entities, biological species included.

This angle of approach makes Dooyeweerd's rejection of evolution theory very specific. He does not appeal to texts from scripture, as creationists do. He does not depend on supposed observations of nature, as pre-Darwinian biologists did. And he rejects Aristotelian metaphysics. Nevertheless, via a detour, he arrives at essentialism, assertions about the constancy of species that are empirically untenable and that, upon closer analysis, prove to be a result of metaphysical reflections.

Henk Geertsema, professor emeritus of philosophy in the Dooyeweerd Chair at the VU University Amsterdam, has taken up Dooyeweerd's cause in "Emergent Evolution? Klapwijk and Dooyeweerd" (2011, 50-76). He finds my reproach of Dooyeweerd's metaphysics misplaced. In Geertsema's view, Dooyeweerd, in his theory of individuality structures raises an authentic philosophical topic, the topic of individuality: "how to account for unique individuality" (2011, 55). Dooyeweerd reflects on a basic trait of empirical reality, the difference between universal and individual. While in vol. 2 of his magnum opus, the *New Critique*, he discusses the topic of universality, namely the theory of universal modes of being, in vol. 3 he deliberates on the reverse side of this subject, the topic of individuality. How do, say, the physical, biotic, and sensitive modes of being mold together into the individual whole of an animal? An animal is more than a stack of physical and above-physical ways of being; it is a unique and indivisible whole. Well, Dooyeweerd requests attention for what is unique in individual things and for the typical structure that determines this uniqueness. The question, what is the typical nature of individual things, is therefore not an idle, metaphysical, nonsensical question but a serious, empirical problem. Geertsema (2011, 52) states:

Regarding the diversity of the modal aspects, which Dooyeweerd calls the 'modal horizon' of our experience, Klapwijk agrees that they are a condition for the possibility of our experience. But, different from Dooyeweerd, Klapwijk does not count individual things and their structures among such conditions or presuppositions. Evidently, Klapwijk does not recognize what Dooyeweerd calls the horizon of individual things as an independent presupposition of experience.

Is this a correct presentation of my views? Nowhere do I deny that, beside the modal horizon, there is the horizon of individual things. To the contrary; I consider the distinction between modal and individual to be fundamental in describing human experience. However, whether the fundamental recognition of individuality implies the necessity of accepting typical structures of individual things in the style of Dooyeweerd remains a legitimate question.

I admit, at times Dooyeweerd designates things as “atypically individual” (1957, 97). But he usually focuses on the typical structure that lies at the basis of individual things or phenomena, the composition of traits that is characteristic for individual things in the sense of essential or determinative for their identity. Think of the structure that is inherent in linden trees, houses, paintings, tornadoes, and what not. Things are not totally defined by their individuality; they have something universal, a typical profile that they share with similar things. Dooyeweerd’s individuality structures are thus, if push comes to shove, type-structures. The type-profile of things (Aristotle would speak of the form of substances) guarantees the unchangeable identity of things in the changes of time. Linden trees die but the type remains.

Is Dooyeweerd’s interest in type-structures misplaced? Not in the least; it is highly relevant. For individuality and typicality both force themselves upon us in our experiences. The typical is especially noticeable in our experience of living nature. Think of bird watching; our attention is aimed at individual birds but in particular at the type that they represent.

Dooyeweerd’s theory of types becomes problematic when he elevates structural types to law-like standards. He labels a type-structure as a law: “We have observed that a *type*, as a *structure* of individuality, has the character of a law” (1957, 97). Vol. 3 of *A New Critique* is based entirely upon this colossal claim! Beside the laws that are determinative for the modal spheres, say physical, logical, or moral laws, we are suddenly confronted by “laws of individuality.” They are laws that determine the essence of individual things and that lend them an immutable basis. The essence is founded in the order of the world, and that world-order goes back to God’s creating will.

Dooyeweerd has applied these type laws in particular to culture and society. With implications that are not to be ignored! For me, the implications for living nature are of special interest. Dooyeweerd states that the taxa of systematic biology — kingdoms, phyla, classes, orders, families, genera, and species — represent type laws in principle. Species receive a key position. He calls them “the most individualized structural types” and “the lowest communal types of the plant and animal kingdoms” (1959, 143, 146). Thus species are constant, anchored in the creation order. But Dooyeweerd does not answer the question why varieties and races, which can also be recognized by typical traits, do not represent a “communal type.” Because varietal improvement by plant and animal breeders shows that varieties are not constant? The existence of races is an indication that a typical structure is not by definition an unchangeable structure. In other words, constancy of species raises questions. How did the species originate in time? Is there not a genetic line from unicellular organisms via multicellular organisms to the first human being? Dooyeweerd’s answer is

systematically “we *cannot* say” (Klapwijk 2008, 251). He names this inability *docta ignorantia*, learned ignorance (1959, 156). The term probably betrays his embarrassment.

Because Dooyeweerd elevates his type structures to laws, they begin to suspiciously resemble Aristotle’s form principles, which were also law-like standards. Does this give me the right to speak of an “essentialist error” (Klapwijk 2008, 248)? To answer this question the exploration above is not sufficient. We need to know more precisely upon what grounds Dooyeweerd identified species as types, and types as law-like structures, and how metaphysical considerations were allowed to play a role in his story. Geertsema’s thorough analysis can certainly help us here. Regrettably, limitations of space prevent me from discussing all his arguments — a document of 27 pages! — here and now. Perhaps the editorial board of *Philosophia Reformata* will allow me to come back to this topic later.

4. *The purpose of life is not self-evident*

In the preparation for publication of *Purpose in the Living World?*, Cambridge University Press wanted to remove the question mark from the title. When the Dutch version — *Heeft de evolutie een doel?* — went to press, the same thing happened. In both cases I was able to prevent this intervention just in time.

Why the wish to remove the question mark? Publishers know exactly what readers want. They want clarity. Also from philosophers. Perhaps this is the reason why Wolfinger, in “Whence the Question Mark?” (2011, 77-83) takes his orientation from Dooyeweerd. For Dooyeweerd provided clarity. In writing and debate, he always stated his deepest convictions clearly. From his opponents, too, he asked for clarity about their philosophical presuppositions and religious motivations.

Russ Wolfinger, director of Scientific Discovery and Genomics, SAS Institute, Cary, USA, also pours clear wine himself when his deepest convictions are in the balance. Thus, in the above-mentioned comments he immediately offers two points of departure as his calling card:

1. The principle of irreducible modalities. This states that the world is comprised of a series of modal aspects that are not reducible to each other.
2. The principle of religious determination. This states that every theory is determined by the faith in a presuppositional belief in one or more entities that we hold to be divine (2011, 77-78).

When it comes to the second point, the principle of religious control, Wolfinger wonders about the question mark in the title of my book. In fact, the whole questioning attitude in my philosophical approach amazes him. Does Klapwijk himself really believe that a religious motivation determines theoretical reasoning? And if so, why has he kept silent for so long? For a time he even read *Purpose* as Klapwijk’s attempt to remain “purely theoretical” (2011, 79). Only at

the end of the book did he discover my orientation toward Augustine. Only there did he come to the conclusion that the Augustinian adage, *fides quaerit intellectum* (faith seeks understanding), can be read as an equivalent of the principle of religious control (2011, 78).

Nevertheless, the question mark in the title continues to bother him. If we know that all theories, even those of dyed-in-the-wool naturalists and atheists, cannot divorce themselves from religious or pseudo-religious assumptions, why don't we state immediately that also the theory of emergence starts with a faith, namely that it is God who created the world and gave it a purpose?

So if I may ask bluntly: what is the divinity belief behind the theory of emergent evolution? If it is the Christian God of the Bible, then we can infer purpose in creation as a corollary and there is no need for the titular question mark. If it is physical matter or some other reductive naturalistic divinity, we can infer chance-driven purposelessness, and again no need for the question mark! (Wolfinger 2011, 79)

Creation has a purpose, Wolfinger states. I agree with his statement, if I may interpret it as a profession of faith. As soon as this statement has to serve as an argument in a scientific debate, it falls short. Scientific problems cannot be solved with statements of faith; not only Galileo but also Dooyeweerd have assured us of that.

I give an example. In evolutionary science the opinion predominates that any purpose can be denied to the world, because the development of life on earth has been a series of contingent events. To cite a well-known pronouncement of Stephen Gould: "We are the accidental result of an unplanned process ... the fragile result of an enormous concatenation of improbabilities, not the predictable product of any definite process" (1983, 101-102). In church we can contradict such a statement by referring to the Bible or to the God who created humankind in his image and likeness. But in science we have to come with appropriate evidence. We have to demonstrate not *that* but *how* God's word is a lamp for our feet, and how this word concretely helps us forward on the thorny path of scientific discovery. If I do not go beyond testimonies, no matter how sincerely they are intended, then I boost the public misunderstanding that science and faith are fire and water.

Meaning and purpose are no longer self-evident notions in modern science. They have to be brought back as valid points of discussion. They have to be raised as a basic topic, especially in the life sciences, the humanities and philosophy. How? We could start with the structural connections that Satherley registered in a previous section between the physical and the living worlds and with the amazing concept of anticipations in nature. We could also focus on the typical complexity of living structures or on the emergent eruptions in the evolutionary process. In a more philosophical framework we should discuss the distinct levels of the world of experience and the sublime hierarchy of modal domains. The question of the extent to which the theoretical sciences and disciplines reflect this ontological pattern also deserves attention. And last but not least, we have to make clear how contradictory the arguments of

physicalism are, in reducing the world to a conglomeration of force and matter.

We are scholars. Wolfinger challenges us to think through anew about the purpose of life. Let's not do that by formulating a profession of faith but by bringing arguments forward that support this witness. In the spirit of the apostle Peter, but as scientists, let us give a reason for the hope that is in us (1 Pt. 3:15). Although Wolfinger's sympathies lie closer to creationism than to the theory of emergent evolution (see 2011, 80-81), we nevertheless stand shoulder to shoulder on this point.

We are also believers. As believers we have to ask: what is the meaning of life and the purpose of the creation? Is it the emergence of a superhuman intellect, or the realization of a cosmic plan, or the apotheosis of a collective mind based on cloud computing? In *Purpose* I have sketched the creation dynamically as a pilgrimage to the kingdom of God, for the Kingdom of God *is* the creation, seen in the light of its blessed final destination (2008, 7, 237, 275, 280). We have good reasons to see the world in a creational-messianic perspective, and to read Genesis 1 as a liturgical and prophetic text (2011, 27-29). Can Wolfinger agree with this perspective?

5. *Toward a philosophy of regret*

"Some Contextual Reflections on 'Purpose in the Living World?'" (2011, 84-102) is the title of the contribution of Bruce Wearne, theoretical sociologist in Port Lonsdale, Australia. It is a remarkable essay, different from all the others. Wearne offers us a sample of what is called "sociology of science," a discipline that has developed in the United States by the initiative of Robert K. Merton, Bernard Barber and other students of the well-known sociologist at Harvard University, Talcott Parsons. This sociology of science does not deal with the concrete contents and claims of science. Nor does it analyze the social context in which an academic science operates, or the influences which this context has upon this discipline. It addresses the particular status of the science as an institution that has acquired a valued position in society through specific intellectual orientations, social standards and traditions, and, yes, an ethos all its own. In that sense the article by Wearne, who himself has written an outstanding thesis about Talcott Parsons, offers "contextual reflections."

Wearne does not subject the content of *Purpose* to critique but describes it as a fruit of the neo-Calvinism that has developed at the VU University in Amsterdam. He wants to know whether this study about creation and evolution satisfies the quality requirements that should be demanded from such a study. He even goes back in time to evaluate the debate about evolution that took place half a century ago between Dooyeweerd and the young biologist, Jan Lever, about Lever's book, *Creation and Evolution* (Lever 1958). Wearne does not choose sides but investigates whether the discussion that initially stalled and has now resumed with the publication of *Purpose*, meets the standards of science.

The evolution debate deals with sensitive topics. It evokes emotional reactions, caricatures, and accusations. Harry Cook as editor and I as author of *Purpose* came to realize that right away. Shouldn't the debate be carried out in a more professional manner, also in reformatory circles? Shouldn't we do justice to the ethos of science as an institution that increases knowledge and binds people together? That is the interest and concern of Wearne's question.

Reflecting on my collaboration with Cook, and Dooyeweerd's collaboration with Lever, Wearne states that two standards are central: (1) scholarly collaboration of philosopher and disciplinary specialist (2011, 87) and (2) scholarly regret where the collaboration between the professionals breaks down (2011, 88, 97). The first viewpoint is understandable, the second remarkable. But Wearne knows where he wants to go. Lever took distance from Dooyeweerd by choosing for an evolutionary origin of species. Klapwijk took distance from Dooyeweerd by making a specified choice for emergent evolution. In such situations, Wearne suggests, there must be room for feelings of pain and expressions of regret. In fact, collaboration and regret are two sides of the same academic attitude. For despite disagreements, in the realm of science and scholarship one continues to be a partner in a communal project. This attitude is especially mandatory for reformed Christians. For in their tradition there is also a spiritual bond. Thus one may expect here that "regret" breathes the spirit of Abraham Kuyper and the "doleantie" initiated by him, applied to Christian scholarship.

[W]e are confronted with two scholars [Dooyeweerd en Lever] binding themselves to the subjects of their regret, even when, by giving their views, they distance themselves from what they find to be regrettable. (Wearne 2011, 95)

Wearne expresses a mixed judgement about Dooyeweerd in this regard. He praises Dooyeweerd in that he, in his review of Lever's book (Dooyeweerd 1959), repeatedly expresses regret over their differences regarding constancy of biological species. But Wearne adds: Dooyeweerd could not limit the length of his criticism. A review that ends up as an article of 47 pages is "overkill" (2011, 98-99). That Lever subsequently did not continue the discussion, Wearne characterizes as "something deeply sad" (2011, 97). Dooyeweerd's comments should have been shortened editorially, and Lever should have been given room for a response. And Wearne adds that *Purpose* deserves a better reception (2011, 100).

My judgement is not as harsh. As I see it, Dooyeweerd did his very best to create room for Lever's views. I give two examples. The series of articles that they initially wrote together, "Rondom het biologisch soortbegrip," officially assumes the "biological constancy ideal"; nevertheless, Lever quietly receives room to make a case for micro-evolution at the species level: "Thus we have to accept the view of modern biologists that species are not constant" (see Dooyeweerd and Lever 1950, 1 and 15; H.C. transl.). Dooyeweerd shows the same broadmindedness in the review of 1959 when he, in the defense of species constancy, makes a favorable comment to Lever: "Obviously, one may not exclude *a priori* the possibility that many of the currently known types of species considered as type laws have in fact realized themselves by means of a more or

less gradual structural transformation of groups of individuals whose ancestors displayed a different type of species although this possibility cannot be verified scientifically” (1959, 146; translation by Dr Jitse van der Meer, for which I give thanks, H.C.). Mental acrobatics of the highest order! For, if species are type laws that imply constancy, then it is difficult to see how certain populations could ever escape from this creaturely ordering to lend themselves for structural transformation.

In practical ways, too, Dooyeweerd and Lever did not let go of each other. Both lived in Amsterdam-Zuid, within walking distance of each other. They sought contact from time to time. And Lever often said that his views fascinated Dooyeweerd, even if he could not make room for them in his system.

I should add that it was not Dooyeweerd but Vollenhoven, his closest spiritual confidant, who, as chairman of the Association for Reformational Philosophy, declared that there was no room for a theory of evolution in the Association, thus forcing Lever, according to his own account, to terminate his membership. In *Purpose* I have only been able to discuss reformational philosophy and the dispute between Dooyeweerd, Vollenhoven and Lever in one chapter. The comments in *Philosophia Reformata* 2011 demonstrate the extent to which the Dooyeweerd tradition lives on. They also demonstrate the extent to which the contribution of Vollenhoven, to whose chair I was attached as staff collaborator until the end of his academic career, has disappeared from view. Ironic since it was precisely Vollenhoven who, in later years, began to advocate in favour of evolution within the kingdoms (Klapwijk, 2008, 254-258). Were his altered views also evidence of regret?

I count myself fortunate that Wearne has been willing to act as a guest editor of *Philosophia Reformata* and was able to bring together experts from various disciplines in a published symposium dealing with *Purpose*, particularly at the 75th anniversary of the Association. We are grateful to him that he reminds us all, bound together as we are in a reformational tradition, of the standards for an academic dialogue, at a time in which differences of opinion could once again begin to assert themselves.

6. *Augustine, a forerunner of scholasticism?*

Suppose that a prize had to be awarded for the most original commentary on *Purpose in the Living World*? Then I would immediately nominate the contribution of Gerben Groenewoud, medievalist at the VU University in Amsterdam. His article, “Augustine and Emergent Evolution” (2011, 103-116) addresses the role that Augustine plays in my book.

Purpose centers on emergent evolution, according to Groenewoud, but to make this theory acceptable as a Christian view, Klapwijk’s appeal to Augustine is crucial at two points. To relate faith and science he seeks to connect with the Augustinian adage, *fides quaerit intellectum*, faith seeks understanding. And to buttress his view on creation and evolution, he seeks to connect with Augustine’s idea of created time, rooted in *creatio ex nihilo*, creation out of nothing.

The central question is: In dealing with these two topics, am I correct in my appeal to the Church Father?

In order to investigate this, Groenewoud shapes the discussion in the form of a court case. He positions himself as a critical prosecutor, questions the correctness of my appeal to Augustine, and subjects the Church Father to a cross examination. Yes, he makes Augustine a star witness in the Klapwijk case. In regards to the first point, the faith-science relationship, Groenewoud comes to the conclusion that there is a “considerable gap” between my opinions and those of Augustine (2011, 105). For I picture religion, philosophy and science as three concentric circles of which the outer one, religious faith, is the hermeneutical horizon for the theory formation in philosophy, and philosophy the interpretive or worldview framework for the concept formation in science. I furthermore assume that this transcendental-hermeneutical vision about faith and science is not only applicable to Christians but also to Muslims, humanists, and naturalists. Augustine was different. He identified *fides* without exception with the Christian faith. And he was unaware of a plurality of hermeneutical horizons and worldview perspectives.

Also when it comes to the second point, the relationship of creation and evolution, Groenewoud’s critique is none too gentle. My appeal to Augustine’s view of creation and time — time is a creature of God; thus creation precedes all temporal developments, evolution not excluded — he finds quite one-sided. For although in his *Confessions* Augustine considers time to be created (2008, XI.10-13), he also states that time takes place in the soul. For it is the soul that focuses on the past, the present, and the future. For this reason he designates time as *distentio animi*, a distension of the soul toward what was, is, and shall be (2008, XI.26.33). And with this psychological conception of time, Klapwijk’s central thesis, “Creation is the origin of evolution; evolution is the temporal realization of creation” hangs in the air (2011, 112).

Groenewoud appreciates that I want to understand creation in terms of *creatio ex nihilo* but, at the same time, formulates a third criticism. The Church Fathers formulated *creatio ex nihilo* as a reaction to the axiom of Parmenides and other Greek philosophers: *ex nihilo nihil fit*, nothing comes from nothing. Thus, *creatio ex nihilo* is not a Biblical idea but a “contrary philosophical position,” a metaphysical counter move, a deliberate insertion of a piece of pagan philosophy into a Christian pattern of thought, a procedure that we know from medieval scholasticism. In short, Groenewoud suggests, if you want Augustine, scholasticism will be part of the package (2011, 109-110)!

The article has a spectacular ending. In a court case an accusation needs to be defended against before the verdict is pronounced. Who will volunteer? Groenewoud is not unwilling to also take care of the rebuttal. He promptly switches roles from prosecutor to defense attorney for *Purpose* and characterizes its content as a vision rooted in Augustine. The final judgement is given: “At a deeper level Klapwijk does indeed stand in the Augustinian tradition” (2011, 103).

In fact, Groenewoud relieves me of my task to react. Or do some points remain to be dealt with? I pass by point one, Augustine’s psychology of time, for

this does not negate the notion of created time. I also pass by point two, Augustine's assumed conflation of *fides* with Christian faith, for in *The City of God* he certainly assumes there are two kinds of love, love of God versus love of self (1998, 14.28). But I can hardly ignore Groenewoud's third point, his cautious recommendation of scholasticism: "Klapwijk thinks that Augustine kept himself distant from the Scholastic model Who is right?" (2011, 106). Read his summary (103):

God created out of nothing and thus time itself is also a creature with began with the creation. I show that his [Klapwijk's] affirmation of this doctrine comes with a price. He cannot simply set aside what he calls Scholasticism.

Does Augustine indeed prepare the way for scholasticism? I am not convinced. Perhaps *creatio ex nihilo* is a scholarly countermove against Parmenides. But even then, the doctrine's content is rooted in Biblical revelation: read Gen. 1, Ps. 8, 2 Macc. 7:28, John 1:3 and Rom. 11:36. In this, I do not deny that Augustine appropriates pagan ideas, as is characteristic for scholasticism. Think of his theory of *rationes seminales*, obtained from the stoics. Think of his theory of the divine Logos, obtained from neo-Platonism. (See the next section.) The Church Father wanted to understand in the context of his faith; he aspired to an integral Christian view of life. But he was also a child of his times. Unnoticed, syntheses crept into his views, practical accommodations of the Christian faith to ideas, the pagan origin of which he did not realize.

Groenewoud's question remains: Isn't Augustine a forerunner of the "Scholastic position of nature and grace" (103, 106)? I do not think so. In scholasticism — particularly in the version of Thomas Aquinas et al — "nature" and "grace" are interpreted ontologically; they refer to a double realm of being. On the one hand there is the realm of nature, which can be known by the natural light of reason that enlightens every human being. On the other hand there is the supernatural realm of grace, which one can only inherit through faith and baptism. Reason and faith stand side by side. Even though reason is weakened after the fall in paradise through the loss of God's grace, it nevertheless retains a relative autonomy over against faith. Thus, truths of reason, say in the form of Aristotelian proofs of the existence of God, can function as natural supports for the supernatural truths of faith. In other words, in mainstream scholasticism, nature and grace, i.e. the realm of reason and the realm of faith, are conceived as being complementary. They form two terrains that, unlike Augustine's view are attuned to each other, not for lack of thought but for reasons of principle, in providing a synthetical worldview.

Augustine, too, uses the distinction between nature and grace, in e.g. *On Nature and Grace*. However, grace and nature are not understood ontologically here but relationally. They do not refer to two complementary realms, those of faith and reason, but to the unique relationship between God and human beings created in his image, a relationship disrupted by the fall into sin in Paradise. This fall had disastrous results for human nature, including human reason. Over against Pelagius, Augustine emphasizes that human nature is not weakened but "corrupted and depraved," dependent in its entirety on God's grace (*Nature*, ch. 77). Grace is relational; it is God's gracious attitude towards

human beings in healing their corrupted nature, thanks to Jesus Christ (*Nature*, ch. 23, 46, 76).

I summarize. Augustine's thought is not free of syntheses with Platonic philosophy. But these syntheses must be seen as unintended adaptations to the spirit of his time. Augustine is not a scholastic, nor is he a forerunner of scholasticism. He does not defend a synthesis of faith and reason for reasons of principle with an appeal to the semi-autonomous status of human reason. It is not in medieval scholasticism, with its dependence on the *ratio naturalis*, but in the Reformation, under the aegis of *sola gratia*, that Augustine's doctrine of God's grace would find new life.

7. *The true face of Augustine*

In *Purpose in the Living World?* I propose a theory of emergent evolution that is rooted in the tradition of Augustine. Chris Gousmett, who is Corporate Information Manager for the Hutt City Council, New Zealand, and expert in patristic philosophy, places my appeal to Augustine up for discussion. As Groenewoud did also. Nevertheless, there are differences. Groenewoud took a historical approach, making connections with Parmenides, Plato, and scholasticism. Gousmett has a systematic interest. In his article, "Emergent Evolution, Augustine, Intelligent Design, and Miracles" (2011, 119-137) he wants to know if my theory is compatible, not only with Augustine but also with Dooyeweerd. Gousmett is quite critical when it comes to my appeal to Augustine. He suggests that my use of Augustine has been selective and inconsistent, leading ultimately to a position which does not truly reflect an "Augustinian" approach (2011, 120).

To some degree I agree with Gousmett's comments. My approach is selective. Augustine (354-430) left a sizable oeuvre, the result of a life-long, spiritual struggle. In Carthage and Rome he was an adherent of Manichaeism and skepticism. After his baptism in Milan (387) he held neo-platonic views. It was only as bishop in Hippo Regius (396) that he developed into a Biblical thinker of stature, the great teacher of the ancient church. Even then, Plato, Aristotle, and the Stoics continued to influence him. So, in order to consider his significance as teacher of the early church, I have indeed been very selective. I have concentrated on the late Augustine, as we know him from the *Confessions* and *The City of God*. For me that was not a narrowing of my views but the application of a criterion that I also employed when I discussed Calvin and Kuyper, namely the criterion of originality. If one wishes to truly evaluate the significance of a thinker, then one should not get distracted by time-bound opinions but should focus on those concepts in which that thinker was original and ahead of the times.

However, Gousmett's critique goes much farther. It concerns a number of starting points in my thought, my views of creation, time, and emergent evolution. Let me first explain these views.

1. I make a distinction between creation and history. The creation as it is described in Genesis 1 is the basis for the history as told in Genesis 2 (from verse 4 on). Genesis 1 does not merely speak of creating a cosmic initial condition but the whole world, including human beings. And after He had completed the creation (Gen. 2:2) the “genealogy” (*toledoth*, Gen. 2:4) began, i.e. the history of human beings and the world.
2. God’s creative acting encloses all temporal events, the beginning as well as the middle and the consummation, because, according to Augustine, time itself was created (2008, XI.10-13). This history in time is in fact the disclosure and realization of what God created “in the beginning.” This “in the beginning” of Genesis 1 does not indicate the *commencement* of time — the eternal God is not bound to time — but a moment in eternity that lies at the *basis* of time. At that moment “all things were made” (John 1: 3), a pronouncement that extends to the new heaven and the new earth of Revelation 21.
3. The theory of evolution only makes sense in the light of creation, for creation is a force that drives all of temporal history. It is the force that drives the explosions of stars, the vitality of organic nature, the birth of human beings, and the turning of the ages. Yes, it structures the entire process of emergent evolution.

On this path Gousmett and I have unfortunately lost each other. I would assume that this happened at the second stop. Gousmett defines emergence as a novelty that cannot be explained by the preceding laws or developments. This is correct! From this he concludes that the theory of emergence is independent from the creation order. It generates organisms and laws that were not part of the creational beginning, it opens doors for modal functions that transcend faith and, in fact, it declares all natural and societal functions to be contingent (2011, 121-123). All of this is based on a serious misunderstanding. I can indeed say that, through emergent evolution, completely new, supra-physical domains came into being. I can also say that the physical world made a new start when the realms of archaea, bacteria, protists, plants, animals, and human beings appeared. But I will always add: “There can only be becoming, also becoming in terms of evolution, on the basis of creation” (2008, 192). For God did not only create the *commencement* of time and history!

What is Gousmett’s own position? He connects creation and temporal history in a very specific and, in my opinion, questionable way. From Dooyeweerd he deducts, with the help of Augustine, that all things, in both their law side and subject side, were created simultaneously in the beginning as germinal forms, and these germs would actualize themselves later in time. Gousmett (2011, 122) states:

There seems to be a legacy in Dooyeweerd’s views (borrowing from Augustine) that all things were created simultaneously with law and subject in germinal form which were then correlately manifested in cosmic time.

Gousmett here links Dooyeweerd’s idea of creation with Augustine’s speculative doctrine of “seminal reasons” (*rationes seminales*) as it can be found in *On the*

Trinity and *The Literal Interpretation of Genesis*. In these writings Augustine attempts to make it understandable how God's creative action in the beginning continues to work in history and how we, just as Adam and Eve, can therefore be called God's creatures. In the beginning of time God would have created the material things with a seminal reason, an invisible potential that can, in later times, realize itself in an actual form. These seminal reasons would have originated from the eternal ideas in the mind of God. It sounds like a Christian message but, in fact, Augustine derives these "rational seeds" from the *logos spermatikos* of the Stoa, and his "ideas in the mind of God" from the neo-Platonism of Plotinus. The end result is an unintended synthesis between the Christian belief in creation and some key concepts from pagan thought, a synthesis that, in my view, results in a logification of the creation order, nowadays often reformulated in terms of an intelligent design.

Does Gousmett himself, under the influence of "his" Augustine — for he too selects! — also attempt to make a similar connection between creation and history? In his view, creation in Genesis 1 deals with the cosmic initial situation. The question then arises: how do later things participate in this creation? Are they elaborations of the seminal principles laid in the initial creation? Dooyeweerd and I distance ourselves from these seminal principles in Platonic dress. We do this because they suggest "speculative connotations," as Gousmett notes (2011, 123). Nevertheless he seems to hang on to the idea of seminal principles. This is perhaps also the reason why he sympathizes with Intelligent Design (2011, 120, 127-129).

There is no becoming unless it is grounded in God's creative acting; I share this point of view with Gousmett. In this we are both pupils of Augustine. How do we work this out? Gousmett has problems with my view of emergence; he must have misunderstood this view. I have problems with his idea of creation in germinal form. Together we will have to continue to think about becoming in the light of creation. And about the true face of Augustine.

8. *Does God create by means of evolution?*

Harry Cook is professor emeritus in the history and science of biology at The King's University College in Edmonton, Alberta. In the past years he edited and translated *Purpose in the Living World?* He was actively involved in the questions about the uniqueness of organic nature, the distinct organizational levels of living organisms, and the significance of the theory of emergent evolution. In increasing measure, *Purpose* became "our book." After its publication, Cook explored the theme of biological complexity and holistically oriented systems biology, including the latest literature (Cook and Bestman 2011). He wrote a solid critique of *Purpose* and "Creation Belief" in his article "Creation and Becoming in Jacob Klapwijk's Theory of Emergence" (2011, 138-152).

The first thing one notices in Cook's commentary is that he, as a theoretical biologist, is fully convinced of the importance of the theme of emergence. Over the past years I have had many discussions with colleagues in theology and philosophy. But the big question for me has always been how the theme of

emergence would relate to the ideas that biologists formed about the beginning of life, the origin of complex life forms, the coherence of matter and mind and, not to forget, the relationship of evolutionary science and the belief in creation. The modern mind usually assumes that there is an unbridgeable gap between creation and evolution. Shouldn't we, as Christians, bring the spectacular developments of the life sciences into an evolutionary theory that is rooted in the message of creation? The support that I have received from Cook in this regard was of inestimable value. That support also shows through in his comments.

The way that Cook positions *Purpose* is also important. In his view, the book belongs to the chorus of critical voices that have joined in the evolutionary debate to expose the dogmatic views of Richard Dawkins, Daniel Dennett and other gurus of reductionistic naturalism. Cook informs us of the newest developments in the discussion and of the growing interest in the theory of emergent evolution. Can we rightly speak in the natural sciences of a hierarchical structure of the world? Does living nature indeed manifest a plurality of organizational levels? And do these levels point to a fundamental diversity of biological ordering principles?

In his discussion, Cook deals in detail with the position that is commonly known as "theistic evolution" (TE). He does this from a personal familiarity with the literature on the subject, and also because my comments about TE have been rather critical.

His [Klapwijk's] objection to TE finds its basis in his distinction between creation and becoming, that is, between Genesis 1: 1 to 2:3 and 2:4 to 2:25. He suggests that the becoming passage can be the basis for viewing the evolutionary process in a Christian context. He criticizes TE for identifying the evolutionary process with creation, i.e. for conflating the two. (Cook 2011, 144)

What I have learned from Cook is that theistic evolution has become a widely accepted concept in the Anglo-Saxon world, also among evangelical Christians. Often the term is used in a very general way and then TE means little more than that faith in God is compatible with the theory of evolution. In this frame of reference, I have no difficulty with the comment of Tony Jelsma, cited by Cook: "if we take the term 'theistic evolution' at face value, then Klapwijk would be included in that category" (Cook 2011, 145). However, in the evolutionary debate "theistic evolution" has come to have a much more specific meaning. God, in the creation of the world, and especially of living organisms, would have made use of evolutionary mechanisms. The short summary often is: God creates through evolution.

In *Purpose* my reaction was short and sceptical: "Does God create through evolution?" (2008, 36). In "Creation Belief" I delved deeper into the views of TE. I discussed the opinions of the Anglican scientist and priest, Arthur Peacocke that end up in a form of panentheism, the views of Theodosius Dobzhansky that lead to a conflation of God and nature, the ideas of Francis Collins, which sound Roman Catholic at times but which have an evangelical background, and, finally, the "evolutionary creationism" of Denis Lamoureux

(2011, 14-16). I could also have cited Roman Catholic adherents of TE, such as Kenneth R. Miller and John Haught. Of all these thinkers, Lamoureux demonstrates most clearly that the concept of theistic evolution threatens to marginalize belief in creation. Hence his preference for an alternative term.

I ask once again: “Does God create through evolution?” Cook remains cautious here. My answer is negative. This answer has to do with the basic tenor of the Apostolic Creed: “I believe in God the Father almighty, Maker of heaven and earth.” It also has to do with the basic idea of *Purpose*, that creation is foundational and is realized in temporal history. One of my mentors, Meijer C. Smit, named temporal history that began in creation, has its center in Jesus Christ, and reaches to its ultimate consummation in the eschaton, “the first history.” All historical and evolutionary developments, which can be summarized as “the second history,” i.e. the object of study of the academic disciplines, are dependent on it (Smit 1987, Klapwijk 2009a).

Thus I see “Creation through evolution” as a groundless statement. First of all, it contradicts the Biblical witness in Genesis of a completed creation. In addition, it suggests that genetic principles and evolutionary processes would make creation possible, instead of the other way around. Finally, it deprives us insight into the question that this article deals with, from the discussion with Clouser onward, namely, where does the dynamic of emergent evolution obtain its deepest drive and where does it find its ultimate purpose?

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