



Speaking of God in an Age of Science

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Preface

This thesis is thought to add to the theme of 'Theology in an Age of Science'. It centers on the substantial contributions to this theme by Arthur R. Peacocke, British biochemist and Anglican priest. Peacocke died on 21 October 2006, shortly after adding his final remarks to a book summarizing his perspective, *All That Is* (Peacocke & Clayton: 2007).

The preparations for this thesis has consisted of "grasping" the theological work of Arthur Peacocke, and then especially as presented in his book titled *Creation and the World of science (CWS)* (2004 [1979]). As suggested in the title of this book, Peacocke saw the theological notion of creation and the scientific worldview as compatible. This thesis explores this perception.

In order to convey the significance of Peacocke's work over a few pages, a meta-perspective is chosen. The current perspective, which is imagined as a key to Peacocke's thinking, is that of *Peacocke as a Functionalist* (chapter I). Although not argued very explicitly by Peacocke himself, and with only loose connections to any such 'school', Peacocke's perspective, I suggest, is that of a functionalist.

Some possible implications of Peacocke's functionalism are drawn by *A Discussion of Peacocke's Functionalist Perspective* (chapter II). It is held that theology in an 'Age of Science' is revitalized by the necessity of discussing the idea of transcendence in both theology and science.

In conclusion, the perspective of Peacocke is expounded in relation to contemporary theology, that is *Theology in an Age of Science* (chapter III).

The language of this thesis tries to reflect the terminology used by Peacocke in his theological works. However, by repetition, some extra emphasis is put on special concepts and related language used by Peacocke. This is meant to communicate his particular vision. Foremost, the terms 'physical nexus' and 'world' are used in an interchangeable way and with meanings similar to those pertaining to 'cosmos' and 'universe'. But in later books Peacocke also uses phrases like 'all-that-is' and 'the stuff of the world' with similar intent.

Chapter I: Peacocke as a Functionalist

Life and work of Arthur R. Peacocke¹

Arthur Robert Peacocke was born 29 November 1924, in Watford, England. His higher education began at Exeter College at Oxford, where he attained a Ph.D in physical chemistry in 1948. Peacocke attained a diploma in theology in 1960, and a bachelor degree in divinity in 1973. In 1962 Peacocke was conferred the prestigious degree 'Doctor of Science' from the University of Oxford, and 1982 he was also given the degree 'Doctor in Divinity' from the same place, making Peacocke the very distinguished beholder of a double Doctorate at Oxford (Ward in Peacocke & Clayton 2007: 152).

From 1948 Peacocke taught chemistry and biochemistry at the University of Birmingham, and from 1959 he held a teaching position at Oxford. Meanwhile he was also doing research in the field of biochemistry, and Peacocke also participated in the early research into the DNA (Peacocke 2005: x). In 1971 Peacocke was ordained as a priest, and in 1973 he started working as lecturer in both theology and biochemistry (!) at Clare College, Cambridge. In 1988 Peacocke became the Director of the newly founded Ian Ramsey Centre for Science and Religion, an office that he held in two periods, the last ending in 1999. In 2001 Peacocke was awarded the Templeton Price for Progress in Religion. Peacocke died from cancer 21 October 2006, at an age of almost 82.

Peacocke started to take part in theology by the late 1950s, when he was encouraged by Professor Geoffrey Lampe to start on a diploma in theology while he was at Birmingham. The relationship of science and religion had been on Peacocke's mind since the start of his education in the 1940s, while his stance was still that of an agnostic (Brooke 2007). In 1960 he first addressed the Diocese of Southwark concerning science and religion, appealing for a greater understanding for science within the Church. Over the years he initiated the 'UK Science and Religion Forum', besides the 'Society of Ordained Scientists' (an ecumenical order for ordained scientists) (Peacocke 1994), and the 'European Society for the Study of Science and Theology'.

¹ This section is mainly based upon the following sources: "Arthur Peacocke" in *Wikipedia, the free encyclopedia*, accessed 2008-03-06; and: "Peacocke's author profile" at *Gifford Lectures*, accessed 2008-05-05 from <http://www.giffordlectures.org/Author.asp?AuthorID=255>; Polkinghorne, J. "Canon Arthur Peacocke," in *Independent, The* (Polkinghorne 2006); Brooke, J. H. "Arthur Peacocke (1924 – 2006)" (Brooke 2007).

Peacocke authored some 200+ articles and more than 12 books (Brooke 2007). His influence has been considerable in biochemistry, but it is his theology that has made him renowned. He contributed to the Bampton Lectures in 1978, soon published as *CWS* (1979), which was later re-published with additional notes in 2004. Another major work is *Theology for a Scientific Age (TSA)* (1993 [1990]), which is partly based on his delivery of the Gifford Lectures in 1993. Until the end of his life, Peacocke continued to elaborate his viewpoints with a series of books. However, though mostly engaged with theology, Peacocke never ceased his activities as a biochemist and continued to publish works in the field after his turn to theology.

Opening remarks

As a professional scientist with an interest for theology, Peacocke has concerned himself with fundamental questions concerning religious beliefs and practices in an 'Age of Science'. Through his research into nature, philosophy and religion, he has achieved a position for himself as both scientist and theologian, which has allowed him to enter the field of theology as a scientist and interact with other theologians on the issue of God. His search for a common ground for science and religion has led him to explore some distinct developments with regard to epistemology, ontology and philosophy of science. His overall position he later in life refers to with the acronym *ENP*: Emergentist, Naturalistic, and Panentheistic (Peacocke & Clayton 2007). However, the main perspective of this thesis is that of Peacocke as a 'functionalist', and it shall be argued that this label is most fitting to his overall position. This label suits Peacocke especially with regard to his perspective on the mind-body relation, but it can also serve as a meta-perspective which help to unite the diverse aspects of Peacocke's thought.

Peacocke contributed scientifically as a biochemist, but in and through his theological books he was concerned with the impact of science in general on theology. But there were also influences stemming from the side of theology, which became decisive in pushing Peacocke in the direction of theism. Thus in Peacocke's works, there can be seen an ongoing dialogue between science and theology. As a contrast, there are others who would draw a line between religion and science, or even think of religion and science as conflicting (Barbour 2003). Peacocke did not want to break away from naturalism, but he confronted those colleagues who wanted to champion a soulless and meaningless cosmos. Thus, he disagreed openly with the

french biologist and nobel laureate Jacques Monod on the right interpretation of the role of chance in evolution. Peacocke's confrontation of this problem is said to be one of the factors that influenced Peacocke's turn to theology, and thus to the science-religion dialogue (Woloschak 2007: 1).

Theological Influences

The theologies influencing Peacocke came foremost from his own religious tradition, the Anglican Church of England.² Peacocke mentions especially names like Archbishop William Temple, Geoffrey Lampe and Charles Raven. Peacocke generally honors a lineage of British theologians starting from the end of the 19th century – theologians which not only accepted the theory of evolution, but even saw it as a friend against deistic assumptions about a distant God – and thus came to embrace the 'God of Evolution' instead of the 'the Wonder-worker, the God of an old theology' (Peacocke & Clayton 2007: 18).³

The influence of Archbishop William Temple is central with regard to the chosen meta-perspective on Peacocke as a functionalist – and this is also documented in Peacocke's self-understanding (Peacocke 1993 [1990]: 342). The implications of Temple's views will be treated at more length later. For now it will suffice to say that Temple made an effort to bridge the traditional Christian understanding of the nature of the sacraments, at the one hand, and the universal sacramentality of the world, on the other. Geoffrey Lampe, seems to have influenced Peacocke to appropriate a modalist understanding of the Trinity of God (Peacocke 2004 [1979]: 207, 33). Charles Raven, was a Professor of Divinity in the University of Cambridge, and he embraced evolution wholeheartedly as the activity of God, and argued that the world owes itself to the presence of a living God (Peacocke 1986: 84).

Pierre Teilhard de Chardin (1881–1955) is another early theologian (Roman Catholic) that Peacocke refers to through most of his books. Teilhard was published posthumously by the time Peacocke started his theological education. Teilhard worked out a grand synthesis between Roman Catholic faith and the worldview espoused by the philosophy of evolution (Peacocke 2004b: 27). He proposed that humankind represents the spearhead in a purposive evolution driven by its consummation in the 'omega point' – the aim towards which

² C. Southgate suggests that Peacocke belonged to a liberal Anglican school, much under the influence of Geoffrey Lampe; cf. *God, Humanity and the Cosmos* (T&T Clark, 1999), outlined at <http://www.counterbalance.net/ghc-div/peaco1-body.html>.

³ Peacocke names especially Aubrey Moore (1848–1890) and Henry Drummond (1851–1897) in this context

“evolution” points.⁴ Christ’s role as an redeemer was seen to lie more in his role in the future of “evolution” than in a singular moment of redemption (ibid., p. 27-28). In general, there are much which unites Peacocke and Teilhard, but Peacocke differs explicitly on the issue of divine influence on the evolutionary processes, an issue where Peacocke is content with speaking of the inbuilt *propensities* of these processes – i.e. potentials and probable outcomes arising from initial conditions (Peacocke 2005: 10).⁵ Another aspect is that of panpsychism versus physical monism, where Peacocke holds the position that the phenomena of consciousness only arises with sufficiently complex forms of matter – it is not to be thought of as an element present through all of evolution (Peacocke 2004 [1979]: 125-27).

Functionalism

As mentioned, the chosen meta-perspective on Peacocke is ‘Peacocke as a functionalist’. This relates especially to his position regarding a ‘philosophy of mind’. However, this position must be seen in relation to another aspect of Peacocke’s philosophy, that is his materialist ontology, which he says is the most coherent option in light of the scientific knowledge of today (Peacocke 2004 [1979]: 121-28). Materialism, together with functionalism, works successfully together with regard to the mind-body problem, as espoused under the name of ‘anomalous monism’⁶, where the reality is ascribed to ‘mind’ breaks with behaviorism and other ontological reductionisms (Peacocke 2004 [1979]: 130-31). In this view ‘mind’ is seen as a real function of matter (Peacocke 2004 [1979]: 128), in the sense that ‘mind’ denotes a sphere of properties and activities which belongs to certain forms of organization of matter, without it being reducible on the level of description (Peacocke 2004 [1979]: 155). This view on ‘mind’ is only reductionistic in the sense that it suggest that anything real exists within the reality of the physical nexus (matter-energy in time-space) – there is no other “thing” other than atoms and molecules (Peacocke 2004 [1979]: 128). Meanwhile, the usefulness of methodological reduction is still maintained, in the sense of breaking down the unintelligible complex wholes (Peacocke 2004 [1979]: 115). Stated independently of Peacocke, it is said that, in a ‘functionalist’ view on mind, mental states depend upon physical brain states, though not in a deterministic way, and thus better conceived of in functional terms (Levin 2004).

⁴ Teilhard’s concept of “evolution” involved simultaneous development of consciousness and complexity. Cf. “Omega point” - *Wikipedia, the free encyclopedia*, accessed 2008-05-05.

⁵ This is a simplification. As shall be made clear below.

⁶ Peacocke refers especially to Donald Davidson as proponent for this position.

Functionalism in systems theory, is also a field to which Michael Polanyi (1891-1976) has contributed, and he has been very central to Peacocke's argument. Polanyi seems to have coined the concept of hierarchies in nature before Peacocke started using it in his books. Also the term 'boundary conditions' seems to stem from Polanyi (Polanyi 1970).⁷ This aspect of Peacocke's functionalism might be thought of as his 'whole-part philosophy', where parts in relation to wholes are very much understood in terms of ascribed roles and functions.⁸

Functionalism is a term within anthropology as well. Peacocke refers to anthropologists like Malinowski and Lévi-Strauss while arguing for a unified perspective on science and religion, in which the two are said not to differ so much in essence but rather in their aims and purposes (Peacocke 2004 [1979]: 28-29).

Also, the panentheistic stance of Peacocke is also conceivable in terms of functionalism. This is so by the extension of sacramental language to the world as a whole, a operation made explicit with William Temple speaking of the two functions pertaining to the world as a universal sacrament, that is, with symbolic and instrumental functions in relation to God (more about this later). This sacramentalism has also other sources. Luther had a way of speaking of the Real Presence in the Eucharist with the formula "in, with and under" – language which is utilized by Peacocke to address the relation between the world, as explicated by the sciences, and God (Peacocke 2004b: 108). Peacocke's panentheistic beliefs are also concurrent with a piece of early Christian apologetics found in Acts 17.28, where St. Paul cites a Greek poet in his argument, "In Whom we live and move and have our being," with the suggestion of a greater whole in which persons live out their functions.

⁷ Although Peacocke by 1979 does clearly emphasize his indebtedness to Polanyi, he gives credit to his concept of 'hierarchies in natural systems' as the basis of much of his argument; in *CWS* (Peacocke 2004 [1979]: 371 n. 5).

⁸ Peacocke's line of thinking seems very congruent with 'systems theory'. 'Systems theory' is described as "a framework by which one can analyze and/or describe any group of objects that work in concert to produce some result." Ilya Prigogine, which Peacocke also makes frequent references to, is listed as one who has utilized the concept of 'emergent properties' in systems theory to describe organisms as living systems, cf. "Systems Theory" in *Wikipedia, the free encyclopedia*, accessed 25th March 2008 from http://en.wikipedia.org/wiki/Systems_theory.

Bridging religion and science

In his paradigmatic publication, *CWS* (1979 [2004]), Peacocke communicates his stance with regard to ‘philosophy of science’ as *scientific realism*.⁹ This stance, he claims, followed in the wake the sociological critique of scientific knowledge, and then especially the postulated objectivity of *scientific positivism*. After this there followed the abandonment of the overt referent of language, and a less stringent attitude towards scientific language as a consequence.¹⁰ In the view of scientific realism, sciences relate to the world through the use of terms, models and hypotheses that are, ‘candidates for reality’ (Peacocke 2004 [1979]: 20-22, 21 n. 37, 39-40). Models (etc.) are ways of imagining what is not observable, but nonetheless they refer to a real world, though in an imperfectly, partial and inadequate manner (ibid.). A scientific model is also made to evolve with the aim of increased reliability, prediction, and range of phenomena to which it is relevant (ibid.). Science is a “processes of finding out the way things [really] are” (ibid.). To maintain a qualified ‘realism’ means to believe in an objective reality, which *per se* is not known, but referred to – e.g. to speak of the *electron* is to believe in a real entity to which the term refers (ibid.).

The Christian philosopher Ian Barbour has in a comparative study on the use of language in science and religion expounded a view in which science and religion are two similar modes of human rationality, and based upon the powers of commonplace language and metaphors (Barbour 1974 [1974]). Barbour writes: “I advocate a critical realism, holding that both communities [i.e. religion and science] make cognitive claims about realities beyond the human world” (Barbour 1990: 16). Barbour’s *critical realism* seems to move in a direction similar to Peacocke’s turn from *scientific realism* to theology, but in contrast to what might be seen as a somewhat simplistic emphasis on the compatibility between religion and science, it seems like Peacocke wishes to maintain a distinction between the aims of theological and scientific enterprises. Peacocke points to the important difference that while science inquires into the causal nexus of nature, theology goes beyond nature itself in the extended search for *intelligibility*, and into what is called the ‘mystery of existence’.

⁹ Peacocke outlines this position as successive to that of logical positivism; cf. *CWS* (Peacocke 1979 [2004]). But it seems clear that this position is corresponding to a position that is now better known as critical realism. Later, Peacocke adopts this latter term, as evident in the publication *Intimations of Reality: Critical realism in science and theology* (University of Notre Dame Press, 1984.). But in Peacocke’s later works, he once again uses the term scientific realism; cf. *Evolution* (Peacocke 2004b), *Palace of Glory* (Peacocke 2005), *All That Is* (Peacocke 2007). But he explains that no matter what adjective is used in front of ‘realism’, it is meant to oppose naïve forms of realisms and anti-realisms; cf. *Palace of Glory* (Peacocke 2005: 40).

¹⁰ This claim rests upon a reference to H. K. Putnam, *Mind, Language and Reality*, Philosophical Papers vol. 2 (Cambridge: Cambridge University Press, 1975).

Peacocke accepts that not everybody find it meaningful to press human inquiry that far (Peacocke 2004 [1979]: 33-35). One could say that Peacocke differentiate between his scientific realism and his panentheism by affirming the speculative nature of the latter and by making it a question of conviction.

Religion

While Peacocke sees no good reason to abandon the notion of a objective reality in science, neither does he doubt that there is a corresponding reality to religious thought (Peacocke 2004 [1979]: 37-38). But in accordance with the panentheistic model, the reality to which religion refer is not radically different in kind from that to which science refer, it is rather simply "beyond" the boundaries of science (ibid.).

John H. Brooke tells about Peacocke that he early on was attracted to the understanding of 'religion' as proposed by Gerd Theissen, that it is, "a cultural sign language that promises gain in life by corresponding to *ultimate reality*" [cursive added] (Brooke 2007). Peacocke also refers to Philip Hefner's notion of religion, in which religion describes reality with the aim of living "optimally," in contrast to be modelling nature *per se* (Peacocke 2004 [1979]: 32-33). Peacocke also claims that this view has gained some support from commentators outside of theology as well. For instance, according to social scientist Donald T. Campbell, religions that arose with ancient urban civilizations have had an underlying functional truth in providing the ability to adapt to the needs of the society rather than individuals, thus providing for the survival and development of civilizations (Peacocke 2004 [1979]: 271). This represents a recognition of at least the functional truth of religion.

In continuation of the functionalist analysis, religion can also be given cognitive roles. According to phenomenologist Don E. Marietta, Jr.¹¹, religious models do express (by their symbolic function) a less than precise perception that the world is this way (i.e. as dependent on a transcendent creative power) rather than another. Included is the perception of ethical obligations. Also included is the perception of events as purposive in light of a transcendent reason. This view on religious models suggests that humans are not fully comprehended when solely conceived in light of physical reality (Peacocke 2004 [1979]: 273). Besides, 'myths' is a term with positive functions that with some justification applies to the sciences as well. Peacocke assumes that myths *generally* operate to construct reality (Peacocke 2004 [1979]: 31). And, as religious myths prescribe an outlook necessary for humans to live

¹¹ D. E. Marietta, Jr. "Religious models and ecological descision making," *Zygon* 12 (1977).

“optimally”, they also provide a value-judgement on what living “optimally” means. On the other hand, science does not put human concerns at the center, but science itself is now recognized, especially in anthropology, as being influenced by social and ideological interests, as well as by determining structures of the mind

Peacocke’s concern for religion seems to reflect his concern for humanity, and his early work focuses on ecological and existential issues (Peacocke 2004 [1979]). It seems like humanity in all its aspects is at the center of Peacocke’s concern for the science and religion dialogue as well, and that his views on human reality functions to bring the realities of science and the transcendent in contact with each other. This could lead one to accuse Peacocke of anthropocentrism, but Peacocke thinks that a sense of anthropocentrism can be justified, and he cites quite harsh words from Polanyi¹² in this regard, “It is the height of intellectual perversion to renounce, in the name of scientific objectivity, our position as the highest form of life on earth, and our own advent by a process of evolution as the most important problem of evolution.” (Peacocke 2004 [1979]: 72) On this basis, that is the significance of human reality, Peacocke bridges the relation of religion to science.

Emergent Ontology: The Continuity of Matter and Spirit

As mentioned, Peacocke uses the acronym ENP to identify his stance, and the first of the components behind the acronym is *emergence*. The basic assumption behind this is that *reality* is not uniform through time, but rather *realities* have emerged along the cosmic evolution, extending from atoms to self-conscious beings. The processes themselves can be uniform, for they are ultimately constituted by the same “stuff,” and that is the ‘physical nexus’ in which all exists (Peacocke 2004 [1979]: 244). Emergent realities represents more of the same kind, that is, more of the same “stuff,” but with new levels of function rather than being ontologically different entities (Wright & Peacocke 2001 [Interview with Arthur Peacocke]). Against ontological reductionism, this view argues that real emergent features cannot be reduced to some basic constituents, and against ‘mentalism’ it argues that mind is but a feature of “complexified” matter, and as such not a basic constituent on par with matter itself. Peacocke therefore stresses the perspective of a cosmic evolutionary process, in which the universe has progressed from a state of uniform matter-energy in space-time, via “complexification,” to the full range of diversity in phenomena and complexity which we know today. The inherent creativity of the interplay of ‘chance’ and ‘necessity’ is judged as

¹² M. Polanyi, *The Tacit Dimension* (London: Routledge & Kegan Paul, 1967), p. 47.

most significant, as it has shown a *propensity* for producing life forms which are more and more complex and sensitive to their environment (Peacocke 1993 [1990]: 68).

Peacocke deals with the problem of ontology mostly in connection with the relationship between mind and body. He points out that the physical and chemical constitution of our brain is shown to be so closely related to our mental experiences, that a body-and-mind identist view is most coherent with observational data (Peacocke 1993 [1990]: 160). In place of the typical dualism of mind and matter, Peacocke instead operates with 'properties pertaining to higher levels of organization', and mind as such – a emergent feature and a function of matter. This means that concepts like 'mind' and 'persons' are seen as emergent realities based on higher levels of organization and the capabilities of matter (Peacocke 2004 [1979]: 24-25).¹³

The concept of emergent realities is to be considered a qualification of the notion of materialism. Peacocke adheres to a kind of "soft" materialism in the sense that he excludes existence of "things" which are not ultimately made up of "atoms and molecules" (Peacocke 1993 [1990]: 160; 2004b: 67; 2005: 9, 23), but he qualifies this position by saying that physical descriptions and deterministic natural laws are not all there is to be said about the world (Peacocke 2004 [1979]: 128). There are, simply stated, within a physical reality higher levels of organization (or 'complexity') with emergent properties which elude descriptions in terms lower level properties and concepts. This means that a fuller view of reality depends on the autonomy of higher level descriptions. This would be easily demonstrated if one considers a living thing: it would require concepts and theories from at least physics, chemistry and biology for a comprehensive description. It is visible from this example that levels of organization in nature (i.e. hierarchies) correspond with a hierarchical organization of the sciences. Peacocke has drawn a diagram of this relationship between levels in nature and the corresponding sciences (Peacocke 1993 [1990]: 217). It would be too much to explicate this relationship in detail, and it must suffice to say that there is perceived mainly four "vertical" levels, that is, 'physical world', 'living organisms', 'behavior of organisms' and 'human culture')¹⁴, and "across" there are multiple "horizontal levels" corresponding to scale, aspects, fields etc. Peacocke admits that reductionism can be methodologically necessary in order to break up unintelligible complex wholes into intelligible parts, but this is

¹³ This view is present when Peacocke speaks of humans as 'psychosomatic unities'; cf. CWS (Peacocke 2004 [1979]: 189).

¹⁴ Interestingly, Brian Swimme says that when we look "outside of" the human world, we see 'instincts', and further we see 'mechanisms'; cf. "Wright Interviews Brian Swimme" (Wright & Swimme 2001).

not the same as saying that the whole is “nothing but” its parts. Methodological reductionism can work out well together with the assumption that descriptions of fundamental levels say something about subsequent levels, in the sense that (f.i.) the concept of molecules and atoms describe a human being, without this entailing a necessary denial of higher levels of description. Rather, reality itself is maintained as in principle distinct from the various levels of description, each offering only a slice of the total reality (Peacocke 1993 [1990]: 40-41).

In the ontology outlined above, emergent realities are constricted by the conditions of lower levels, but higher levels in turn inform lower levels. Out of this reasoning one could say that Peacocke proposes a “soft reductionism.” The resulting image is a stratified whole, with aspects of reality standing in dialectical tension to each other. This view is most coherent when applied to the mind-body relation, as communicated by philosopher John Searle¹⁵, “the higher level causal features are both caused by and realised in the structure of the lower level elements” (Peacocke 1993 [1990]: 60). Correspondingly, also the hierarchy of sciences could be seen in light of this dialectic tension between levels of reality.¹⁶

Another qualification of materialism lies in the inherent potentiality of matter to self-organize, differentiate and complexify, or what is otherwise known as ‘evolution’. But the biological evolution on the surface of earth has its context in a cosmic evolution, and combined, these two perspectives make up a continuous whole of complexifying and creative process of integration of forms of matter. This process has eventually revealed the capacities of ‘matter’, as foremost displayed in the human exemplar. As Peacocke states it, “the label ‘materialism’ could include more than its earlier proponents bargained for” (Peacocke 2004 [1979]: 128).

Naturalism

The second identifier of Peacocke’s position is ‘naturalism’. This designation might seem contradicting in light of the term’s association with apostasy from Christian faith. But Peacocke wishes to overcome the incommensurability of this divide. He chooses to confirm theism as well as naturalism, and he wants to confirm both without disadvantage to the other. Basically, he achieves this through a “re-union” of evolutionary thought and Christian doctrine of creation, as in *CWS* (2004 [1979]). Peacocke points out that there were voices within the

¹⁵ J. Searle, *Minds, Brains and Science* (Cambridge, Mass.: Harvard University Press, 1984), p. 26.

¹⁶ Peacocke seems to be of the opinion that the dialectical nature of hierarchies in nature could apply to the hierarchy of sciences as well. Apparently, dialogue between sciences are asymmetric, since f.i. chemistry and psychology do not relate to each other in the same way.

Church that welcomed the idea of natural evolution at the time of Darwin, like for instance Frederick Temple, archbishop of Canterbury, who in 1854 stated that "[God] made things make themselves" (Peacocke 2004b: 79). Peacocke sees himself in a tradition of Christians accepting the tenets of evolution, while he re-interprets Christian language to salvage as much meaningful content as possible.

The exact content of the term 'naturalism' is uncertain, but included seems at least the doctrine of physicalism, that the physical realm entails 'causal completeness' (or 'causal closure'), where everything can be accounted for by a list of basic physical forces (Papineau 2007). Followingly, it could also be said that this doctrine logically entails another tenet, that the world can be understood without recourse to spiritual or supernatural explanations.¹⁷ Probably, adherence to evolution in the sense of the mechanisms of 'random mutation' and 'natural selection' would also pertain to the views of a naturalist. However, when Peacocke makes 'naturalism' part of his position, it comes with some important qualifications.

Peacocke does not deny the basic tenets of evolution, in fact, he endorses that the effects of mutations are, "purely random with respect to the selective needs of the organism," (Peacocke 2004b: 51) and that the process is fully explicable without any obscure forces pushing or pulling it in any direction (Peacocke 2005: 10). But for starters, he points out that there probably are other factors than 'natural selection' at work in biological evolution, and among these other factors is the notion of 'information flow' between organisms, and between environment and organisms (Peacocke 1993 [1990]: 59).¹⁸ Secondly, Peacocke opposes any nihilistic implications drawn from the role of 'chance' in the evolutionary process.

According to the biologist Jaques Monod, the operation of 'chance' in evolution was so fundamental that there could be *no* talk of purpose or intention behind the universe any more – and the universe could be compared to a giant Monte Carlo saloon (Peacocke 2004b: 52, 94). Peacocke disagrees with Monod on this interpretation of the scientific understanding of evolution, but he applauds the strategy which entails starting with the worldview afforded by the natural sciences for a metaphysical philosophy. Peacocke explicate this in form of an allegory, "[Although I] launch my own ship from the same home port [as Monod], I will in

¹⁷ "Naturalism" in *Beolinguus* -- online dictionary, source: Wordnet 2.0 (Princeton), accessed from <http://dict.tu-chemnitz.de/>.

¹⁸ In some supplementary notes, Peacocke suggest eight factors and mechanisms other than 'natural selection' operating in evolution; cf. *CWS* (Peacocke 2004 [1979]: 377-79).

the end find myself navigating towards a different destination” (Peacocke 2004 [1979]: 53). Contrary to Monod, Peacocke maintains that the operation of ‘chance’ in the evolutionary process is not incompatible with faith in creation. Peacocke points to the creativity inherent in the interplay of ‘chance and necessity’, and thus the operation of ‘chance’ as meaningful in bringing about change in the physical nexus and exploring the ‘potentialities of matter’ (Peacocke 2004 [1979]: 38). The additional point is also made that the evolutionary process might be biased, or in other words, have inbuilt ‘propensities’¹⁹ for producing the complex entities and the all emergent properties which are evident in the universe (Peacocke 2004b: 14). Peacocke uses a metaphor for chance where God is the bell-ringer – “ringing the changes” (Peacocke 2004 [1979]: 105). It seems like this perception means that the order we perceive in the physical nexus is brought about *through* the operation of ‘chance’.

In Peacocke’s objection to an overly simplistic view on evolution, he refers to Donald Campbell²⁰ and the notion of ‘downward causation’ (Peacocke 2004b: 4). This proposition shows that causality in connection with biological evolution is not understood on purely physicalist terms (i.e. ‘efficient causation’²¹). Instead one has to consider other forms of causality, or what might be termed ‘emergent causality’.²² With the addition of ‘emergent causality’, causality within natural hierarchies become a “two-way street” with the character of interaction, or even dialogue between levels (Peacocke 1993 [1990]: 157-60). This kind of causation is more coherently spoken of in less deterministic terms, as ‘constraint’ or ‘influence’ (Peacocke 2004b: 259 n. 5). One example Peacocke uses is that of the DNA in relation to the ecosystem. Emergent causality in this case means that the DNA records information about the organism *and* its environment, and as such do the ecosystem as a whole influence the outcome of the genetic formation (Peacocke 1993 [1990]: 56-59).

A related example Peacocke uses, is the functionality of DNA in light of the concept of ‘boundary conditions’.²³ The structural property of a DNA molecule rests upon the arrangement of atoms in accordance with the relevant boundary conditions (i.e. “principles”) pertaining to this level, but the DNA receives its special *coding function* only as part of the

¹⁹ This is a term that Peacocke has picked up from Karl Popper; cf. *Evolution* (Peacocke 2004b: 72). Specifically, these propensities are tendencies for complexity, self-organization, information storage and processing, and consciousness (loc. cit. in text).

²⁰ D. Campbell, “‘Downward Causation’ in Hierarchically Organised Systems,” in *Studies in the Philosophy of Biology: Reduction and Related Problems*, ed. F.J. Ayala and T. Dobzhansky (London: Maxmillian, 1974).

²¹ The terminology is from P. Clayton; cf. “Natural law and divine action” (Clayton 2004).

²² Ibid.

²³ This term refers to M. Polanyi, cf. above.

milieu of the functional cell in its body environment. The boundary conditions pertaining to the living cell (i.e. the regulation of relationships among the parts within it) are other than the boundary conditions regulating the “lower” level of the molecular structure of DNA and its subsequent parts (Peacocke 2004b: 73). Purely physico-chemical principles do not suffice to regulate the role of the DNA in a living cell (Peacocke 1986: 23-25) – in a similar manner to how the laws of physics and chemistry do not suffice in order to understand the actual formation of sequences of DNA. In this view, states of the whole system must be taken into account when explicating the relationship of parts within the system.²⁴

This whole-part philosophy of Peacocke, as outlined above, is also relevant for the mind-body connection, where Peacocke argues that ‘mind’ is an example of emergent causality (Peacocke 1993 [1990]: 60-61). This would in turn imply that the efficacy of ‘mind’ is explicable in terms of ‘information-processing’ and ‘information-systems’ (Peacocke 2005: 25). In fact, in a functionalist view, ‘mind’ is a ‘cognitive system’, of which the brain is but a constituent part (Levin 2004).²⁵ Peacocke sees in the conception of emergent causation a model for talking about God’s influence on the world (Peacocke 1993 [1990]: 158). He even supposes that God’s influence could be especially strong on the level of human reality (Peacocke 2005: 116; Peacocke & Clayton 2007: 46).

If one were to summarise Peacocke’s naturalist stance, one could say that he breaks with naturalism both with regard to ‘causal completeness’ and ‘exclusion of the supernatural’. However, it is quite possible that ‘naturalism’ could embrace talk of ‘emergent causality’, but surely not ‘divine influence’. So Peacocke’s qualification of naturalism would in sum say that he maintains a *theistic* naturalism, something which he also attests to himself (Peacocke 2004b: 106). When it comes to the interplay of ‘chance’ and ‘necessity’ in evolution, Peacocke rejects the negative metaphysical conclusions drawn from it, and instead makes ‘chance’ a central part of his theology.

Peacocke seems to have found a delicate balance between affirming and rejecting Christian tenets. At one hand he wishes to dispense with the image of God as causally effective in the world (i.e. God as “tinker” or “wonder-maker”), on the other side he wants to affirm a greater

²⁴ It seems like this line of argument rests on very general notions and abstractions, and may not lead to a very reasonable discussion, but these views are central to Peacocke, and besides, the argument do relate to developing research into ‘complexity science’, ‘systems theory’, ‘cybernetics’, ‘systems biology’ and ‘complex adaptive systems’; cf. *Wikipedia -- the free encyclopedia*.

²⁵ Polanyi did also elucidate mentality in a similar way; cf. “Transcendence And Self-Transcendence”, *Soundings* 53, no. 1 (Polanyi 1970).

presence of God within the world as it is explicated by the sciences (Peacocke & Clayton 2007: 166, 89). Peacocke wants to affirm God as the Creator who could be said to be present "in, with and under" the world's processes (Clayton & Peacocke 2004: 142). As contrary to deism, where the role prescribed to God fits unproblematically into a realm "before", "after" or "beyond" the world, Peacocke is even open for the possibility that God could interact with the world and have some influence upon it. In conclusion it could be said that Peacocke's acceptance of a naturalist view on evolution stands somewhat uneasy against the suggestion of God's presence and influence upon the world, even if seen, if not exclusively then more intensely and focused at the personal level (Peacocke 2005: 116).

Panentheism

Peacocke's theism is characterized by the self-declared 'panentheist' label, and this is the third identifier of his position. Peacocke maintains a traditional understanding of this belief, as it is defined by the *Oxford Dictionary*, "The belief that the Being of God includes and penetrates the whole universe, so that every part of it exists in Him but (as against pantheism) that His Being is more than, and is not exhausted by, the universe."²⁶ This model treats the cosmos as somehow embedded within God, and that God somehow exists beneath, under and in the processes of the cosmos. This is a model of the God-world relationship which Peacocke has himself illustrated spatially as a circle upon a page (Figure 1).²⁷ This spatial model is meant to convey that God has somehow originated the world "inside" of Godself, but that God extends unlimited in every "direction." Peacocke adheres to the classical Christian doctrine of *creatio ex nihilo* (Peacocke 1993 [1990]: 169), and he explicitly states that it follows from his panentheistic concept that the existence of the physical nexus of matter is entirely originated and sustained by the being of God, much in the way that a circle drawn upon paper is supported by the very paper it is drawn upon (Peacocke 2004b: 100). In what seems like a cherished image of panentheism, Peacocke quotes St. Augustine saying:

"I set before the sight of my spirit the whole creation, whatsoever we can see therein (as sea, earth, air, stars, trees, mortal creatures); yea and whatever in it we do not see ... and I made one great mass of Thy creation ... And this mass I made huge, not as it was (which I could not know), but as I thought convenient, yet every way finite. But Thee, O Lord, I imagined on every part environing and penetrating it, though every way infinite: as if there were a sea, everywhere and on

²⁶ *Oxford Dictionary of the Christian Church*, 2nd ed. (1983) in TSA (Peacocke 1993 [1990]: 371 n. 75).

²⁷ The circle withing the circle is meant to symbolize the human world within the wider world, and the lines across the human figures is meant to symbolize a multi-leveled human constitution. The arrows symbolize interactions. Note that there is a third dimension as the circle in the hub represents a perpendicular arrow from above; cf. *Paths from Science towards God* (Peacocke 2001: 112ff).

every side, through unmeasured space, one only boundless sea, and it contained within it some sponge, huge, but bounded; that sponge must needs, in all its parts, be filled with that unmeasurable sea: so conceived I Thy creation, itself finite, full of Thee, the Infinite; and I said, Behold God, and behold what God hath created; and God is good, yea, most mightily and incomparably better than all these ...” (Confessions, VII.7; in Peacocke 1993 [1990]: 159)

The image invoked above resembles peculiarly an image that cosmologists hold today, as visualized in a computer animation of the Big Bang, hosted at *Scientific American (online)*, where the universe is depicted as an expanding sphere “afloat” in an undefined substance (Figure 2).²⁸

It should be said that even if Peacocke rejects the four-dimensional ‘block model’ of the universe which has time as one of its spatial dimensions²⁹, his way of speaking of the world as “in” God is indicative of such a “block” image of the cosmos.³⁰ His terminology in speaking of the cosmos (i.e. ‘a causal / physical nexus of matter’) brings to the discussion an image of the cosmos as structured whole, a closed off system with clear boundaries to its surroundings. Given this view of the physical world as a “block”, of sorts, “inside” of God, within which there has emerged, through time and the evolvability of matter, a series of novel systems and features (i.e. ‘emergent realities’), such as ‘living organisms’, and eventually ‘mind’ and ‘person’, one is led to an image of a set of nested boxes that represent the nested set of realities. Peacocke, however, uses the image of nested Russian dolls to elucidate his concept of hierarchies of organization, in terms of a nested part-whole relationship (Peacocke 1993 [1990]: 38). This “nestedness” of realities within the cosmos, on the one hand, and that of organizational hierarchies on the other, seem to run contrary to each other, since increased organization seems to extend “outwards,” while emergence of realities seems to be extending “inwards” (Figure 1). This means that while a human is imagined as a “outer” shell with regard to hierarchical organization of matter, the same human would be considered as nested within the physical nexus, which in turn is embedded in God. Peacocke addresses this paradox by saying that while complexity is spatially related, the spatiality of the pantheistic model is only a metaphor for the *ontological relation* of the

²⁸ Image captured from Flash video “The End of Cosmology?”, hosted by *Scientific American*, accessed from <http://www.sciam.com/article.cfm?id=the-end-of-cosmology-video>. The narrator tells of the Big Bang that it created an expanding ‘vast cosmic ocean’ – shown “afloat” in a undefined substance.

²⁹ Peacocke rejects this model on the basis that he suggests that it would make ‘free will’ illusory; cf. *Palace of Glory* (Peacocke 2005: 7).

³⁰ Peacocke’s treatment of the topic of time and its relation to God is rather complex, and the limits of this thesis does not allow for a longer elucidation, but just as a clue: Peacocke draws on H.K. Schilling for the understanding of time as the ‘carrier or locus of innovative change’, and he suggests that time has a direction corresponding with the emergence of systems in evolutionary processes; cf. *TSA* (Peacocke 1993 [1990]: 131).

world being “in” the ultimate Being of God. This demonstrates the arbitrary character the panentheistic notion of the world as “inside” of God – its spatiality is clearly just a metaphor for the ontological relation of God to the world. This spatial metaphor could have been different, and its significance lies in its message. For instance, if one wanted to emphasize the self-limitation of God’s omnipotence in creation, one could speak of creation happening “outside” of God, like Moltmann has done (Peacocke 2004b: 98).³¹

Meanwhile, the image of the world as embedded “inside” of God (imagine the yolk in an egg) suggests the existence of a wider environment – and this environment would be God. God as the true Environment is, in fact, a suggestion Peacocke makes about God (Wright & Peacocke 2001 [Interview with Arthur Peacocke]; Peacocke 2004b: 45). This ‘ground of being’ Peacocke also denote as the ultimate Reality (Peacocke 1993 [1990]: 184-85). Even if God’s Being is utterly transcendent (ibid.), God’s presence in the world mediates between humanity and God – it is in effect a pointer *towards*³² God. This symbolic quality to the world can be likened with a two-way “route”, extending from God into humanity, and as the other way around, constituted by the transcendence with which the world, and then especially humanity, is imbued (Peacocke 1993 [1990]: 257-58; 2004 [1979]: 205-07). To appreciate this view one has just to consider the “spiritual” aspects of the created world (Peacocke 2004 [1979]: 290).

One ‘defining feature’ of Peacocke’s panentheism is his prescription of sacramentality to the universe (Brierley in Clayton & Peacocke 2004: 8). One might even say that the main thrust of Peacocke’s naturalistic theism lies in this extra dimension added to the world by its embeddedness in God. Central to Peacocke’s ‘sacramentalist’ stance are the works of archbishop William Temple and Oliver C. Quick³³. In a work over the nature of the Christian sacraments, Quick had the notion that the objects of our “outward” world has two possible relations to our “inward” worlds: either, the objects are characterized by what is *done* by them (i.e. their instrumental function), or they are characterized by what is *known* by them (i.e. their symbolic function) (Peacocke 1993 [1990]: 191-92). Temple extended this idea to the whole universe, so that *it* might be considered as sacramental with symbolic and instrumental functions in relation to God (Peacocke 2004 [1979]: 289-90, 301). A quote from Peacocke demonstrate the centrality of the notion of universal sacramentality, “Indeed, the

³¹ J. Moltmann, *God in Creation* (London: SCM Press, 1985).

³² Cf. the title of the Peacockes’s book, *Paths from Science towards God* (Peacocke 2001).

³³ O.C. Quick, *The Christian Sacraments* (London: Nisbet, 1955 [1927]); W. Temple, *Nature, Man and God* (London: Macmillan, 1934).

whole approach of this book (*TSA*) can [...] be regarded as the working out of the William Temple's notion of the universe itself as sacramental" (Peacocke 1993 [1990]: 342).

This sacramental stance implies that what is potentially *known* by the world is God's own Being, and what is potentially *effectuated* by it is the fulfilment of God's own purposes. When this is said, Peacocke specifies that the sacramental character of the world is only partial and implicit (Peacocke 2005: 83), and even obscure in light of human evils stemming from human free will (Peacocke 2004 [1979]: 138). It follows that God's purposes is a varying quality to physical events, especially when it comes to human actions (Peacocke 2004 [1979]: 137-38). But then, the world's sacramentality may at least represent a potential which can become explicitly present in events, as it indeed has in the case of Christ (Peacocke 2005: 83). In this sense Jesus the Christ is the supreme sacrament (*ibid.*), in being both one with God, that is, as a symbolic expression of God, and in being an expression of God's purposes for the world. Peacocke tries to elucidate this interpretation through the analogy of a legal document: "A deed of covenant both expresses the mind and attitudes of benevolence of an individual to some project and itself contributes to the realisation of that project." (Peacocke 2005: 79)

Summary of introduction

It has been shown that Peacocke may be labeled a 'functionalist' with respect to at least five aspects: (1) it is the exact position which Peacocke wishes to maintain with regard to the mind-body problem; (2) as an extension of his mind-body position, and with regards to his general ontology, Peacocke can be said to be a functionalist-monist – this on the basis that the ontological status of emergent features are judged by their efficacy, hence his statement that "the mental capabilities of matter are real functions of matter" (Peacocke 2004 [1979]: 128); (3) as a systems theoretician, Peacocke uses analogies related to mechanics and information systems in his whole-part philosophy, where functional parts are seen with reference to its *milieu* – the context of a bigger whole – and where both reality and complex systems are multi-leveled with 'function' being a question of level of reference; (4) Peacocke is sympathetic to functionalist perspectives on humanity in anthropology, whereby Peacocke unites science and religion as two varieties of human inquiry; (5) in his panentheism and sacramentalism, Peacocke uses the heuristic tool of the two-fold functional analysis of O.C.

Quick and W. Temple, whereby aspects of the world are evaluated with regard to their symbolic and instrumental functions in relation to God.

With reference to Peacocke's self-identified stance as Emergentist, Naturalist and Panentheist, it could be said that functionalism, in the sense of 'system theory', is a common element to the first two identifiers, while functionalism, in the sense of 'the world as sacrament', conjoin the Panentheistic identifier with the first two by the way of analogy and proliferation of 'systems theory'.

Chapter II: A Discussion of Peacocke's Functionalist Perspective

Introduction

Although it may have been proper with a thoroughly critique of Peacocke's proposals, this is not aimed at within the limits of this thesis. Instead, and as opposed to an enterprise of 'deconstruction', this section aims to explicate some core aspects of Peacocke's theological vision and to elaborate on some of his main concepts.

It is especially the concept of transcendence that I wish to explicate in this manner. I want to demonstrate the coherence between Peacocke's functionalist approach and his concept of transcendence as a dimension that signifies God's presence in the world, and then with human reality representing the foremost source for eliciting this presence.

In order to discuss Peacocke on the basis of perceiving him as a functionalist, I focus on core concepts such as 'function' and 'transcendence'. I look for recurrences of such key terms in his works and try to identify his basic argument. With this method I obviously overlook some of the contexts in which the terminology is used. When I also try to read between the lines and associate across chapters and books in order to grasp what unites within his coherent vision, I admit my interpretation may be adding to his work. As a result, this discussion is relatively free in style and not overly covered with references.

My starting point is the recent analysis of Peacocke by Philip Clayton (Clayton 2007), a fellow scientist and co-author to Peacocke on several books³⁴ relating to the science and religion dialogue. According to Clayton, the core of Peacocke's vision is his argument for hierarchies in nature, and then in the way that reality is seen as a hierarchy of systems. Although Clayton is appreciative about this view, he also warns that Peacocke's project may stand or fall with his concept of hierarchies (Clayton 2007: 1). Following up on this, I will suggest that Peacocke's concept of hierarchies is connected to his argument for a dimension of transcendence in the world. While argumentation of transcendence admittedly belongs to his religious perceptions (Peacocke 2004 [1979]: 75), it may just be central to what he might have wanted to add to a scientific and materialistic outlook.

³⁴ In the bibliography section there are two books that Clayton and Peacocke has co-authored.

Discussion

My discussion of Peacocke's vision starts with his notion of 'function'. This is a term that is clearly linked with Peacocke's stance as a functionalist, both in the sense of his interpretation of 'mind', and his appropriation of a sacramental view on the world of matter. The latter implies that the material reality is maximally valued for its symbolic and instrumental relation to God (as opposed to negative valuations of materiality). This positive affirmation of matter, Peacocke expresses as follows, "the world of matter, in its relation to God, has both the symbolic function of expressing [God's own] mind and the instrumental function of being the means whereby he effects his purpose" (Peacocke 2004 [1979]: 290). This position is not new and has been maintained through Christianity, but Peacocke refers especially to the archbishop William Temple, with whom this sacramental view on the universe is made explicit³⁵, and where the world, seen as "instrument" and "symbol" is the vehicle of "spiritual" aspects, such as truth and beauty (ibid.).³⁶

First, Peacocke's perception of mental features is that they are "real functions of matter" (Peacocke 2004 [1979]: 128). Just this proposal is very significant to the hierarchical system perspective that I expound upon here. Before we proceed I want to clarify the possible meanings of the noun 'function'. In the dictionary³⁷ one finds several different uses of the word 'function', but no single clearly defined meaning. However, the use of the word seems to be viewed in light of mainly three related aspects, especially when it is interpreted in relation to its counterpart verb: (1) what something is used *for* – i.e. its use or purpose; (2) the expected performance or assigned task of something – i.e. its part or role; (3) a relationship where something is dependent – as where A is a function of B. In other words, a function can be said to be either (1) passive, as an instrument or a means for an end; (2) active, as performing in respect to assigned tasks or constricting expectations; (3) relational, as pertaining especially to the word's mathematical use, where value A is related or dependent on value B.

Peacocke's functionalist view on mind fits his materialist ontology as mind is seen as a function dependent on matter. This view he explicates by saying that some sort of matter is

³⁵ W. Temple, *Nature, man and God* (1964 [1934]).

³⁶ See also the recognition of Luther and his treatment of the Real Presence in the Eucharist, in "Biology and a Theology of Evolution," in *Zygon* 34, 695–712, p. 709; and M. W. Brierley in *Whom we Live and Move and Have Our Being* (Clayton & Peacocke 2004: 7-8); also, *Evolution* (2004), p. 108.

³⁷ *Beolingus*, sources: Wordnet 2.0 (Princeton) and Merriam-Webster (1913), accessed from <http://dict.tu-chemnitz.de/>.

fundamental to all that exists (Peacocke 2004b: 67), and so also for mind. Mind as such is regarded a 'function' or 'feature' that is dependent on the 'human brain in the human body', an organization of matter which has emerged with time. But mind is also a *real* function in the sense that mental events can not be reduced to physico-chemical events (Peacocke 2004 [1979]: 120). So, in this perspective, it is by its *efficacy* which something is judged as real or not – and mind is a 'real function' because it is both dependent and causally effective (Peacocke 2004 [1979]: 129). But the full range of meaning pertaining to 'function' is even invoked as Peacocke also perceives the world as a sacrament, that is, as a mode of God's revelation and action, where upon the emergence of mind is seen as instrumental both to the being and purposes of God (we will consider this in more detail later). This fuller view on mind – as emergent and causally effective within the physical nexus of matter, but also as in accordance with God's purposes – seems to summarize all technical aspects of the word 'function', that is, as relational, as causally effective and instrumental – and herein lies most of Peacocke's functionalism.

Peacocke's functionalist view on mind is supported by his systems approach. According to Peacocke, the natural world has been shown to consist of a hierarchy of systems (Peacocke 2004 [1979]: 114), and it might be added, especially in the realm of living organisms. The whole specter of known things, on a scale from atoms through living things to ecosystems, has evolved through time to display an increasing complexity and levels of organization, where the 'whole' of one level constitutes a 'part' of successive "higher" levels of organization (Peacocke 2004 [1979]: 113; 2004b: 69). The reality of such levels are especially to be judged by their causal powers (or efficacy), which are not to be found in their isolated constituents (Peacocke 2004b: 68).

As touched upon above, talk about functions infers references to higher levels of organization, especially when one considers the aspect of instrumentality, as fitting for the word 'function' (cf. above). A part have a function in relation to a bigger whole, which in turn may be prescribed a function of its own in relation to subsequent levels of integration. This type of functional hierarchy, I suggest, can be exemplified by the human DNA: By itself it plays no role and effectuates nothing. Only as a part in a living cell does it acquire its function (on the level of 'cell') of directing the protein production, which is essential to the functioning of the cell itself. Cells, in turn, are integrated on the level of organs, which again performs different tasks within the human body, out of which consciousness and self-

consciousness are important features with regard to a particular human also being socially recognized as a human person.

Another consideration is how subsequent levels of organization may give rise to new functions based upon the same constituents. For instance, the DNA apparently have functions not only in the context of the cell, but also on subsequent levels of organization, as it influences the form and activity of many of the organizational levels within a human body. But it should be added that the DNA itself has been adapted to the diversity of roles it has attained, such that a functional analysis of human DNA must include very diverse aspects of human reality.³⁸ The inclusion of higher levels of reference explicate in a fuller sense the efficacy / function of the DNA.³⁹

But then, what is real? Are we to infer that DNA and electrons are the only things which are real, as biologist Richard Dawkins has implied (Dawkins in Polkinghorne 2003: 12).⁴⁰ Here the functionalist (i.e. emergentist) perspective offers another opinion. While the reality of everything is ultimately constituted of some basic units of matter, whereas ‘matter’ *per se*⁴¹ designates the ultimate constituent of every real “thing” (or part), higher levels of organization also display *real functions* on the basis of the constituent parts. Only when material processes are so and so organized and interlocked, do they give rise to new properties (i.e. qualities) or functions with causal efficacy of their own (Peacocke 2005: 96-97). If one wanted to get polemical, one could say that the “realness” of, say the DNA, may be said to lie beyond its materiality, since its material form is “nothing but” the basis for its functionality.

It becomes obvious that whatever real emergent functions there are, they must have their basis in certain organizations of matter, but on the other hand, they refer to encompassing wholes as well. Visually, one could imagine this set of relations as a integrated systems hierarchy (Figure 3).⁴² But as one considers that levels of organization and integration of

³⁸ Who knows, maybe even “spirituality” in terms of a orientation towards God has its genetical basis?

³⁹ In the well known book, *The Selfish Gene* (1976), Richard Dawkins elevates the significance of the DNA by endowing it with intentional powers, something which seems more appropriate ascribed to the level of personal agents. This was made clear to me in a lecture by Svein-Aage Christoffersen, University of Oslo.

⁴⁰ Polkinghorne cites R. Dawkins, *River out of Eden* (Weidenfeld and Nicolson, 1995), pp. 132–33.

⁴¹ What “matter *per se*” really *is* – that is an open question – for instance it could be something like “strings” as in the unified string theory. Bu it still can be assumed and argued upon.

⁴² This illustration is meant to convey the interrelatedness between complexity, functions and wholes. It suggests that functions are seen in relation to encompassing wholes, and that there are interaction between all levels. It should be mentioned that each integrational levels involve myriad of parts, something which is not

matter *correspond* to functional hierarchies and emergent features, it would also be pertinent to consider the inherent capabilities of matter, given these correlations. This is an open question that underlines much of Peacocke's writings.

Peacocke puts the function of mind in the context of the social category of 'person(s)'. This is not to say that mind is not a function on lower levels in nature, but Peacocke argues that it is a strong case for viewing the highest level to include mental states as "that unique system which is the human-brain-in-the-human-body-in-social-relations" [i.e. 'person'] (Peacocke 2004b: 255). It seems likely, besides, that only the level of 'person' is fitting with regard to the full functional potential of the *human* mind. In this view, a person is a functional whole constituted by integrated functions, faculties and material forms, mainly those expressed in terms of mind and body. It is also fairly obvious that the category of 'person' rises out of the existence of social organization as well. As touched upon earlier, one metaphor Peacocke uses for this sort of hierarchy of systems, or 'system of systems', is that of Russian dolls, where one stand inside the other (Peacocke 2004b: 266 n. 6). This perspective goes beyond the concept of biological systems, as it also includes social settings. It might be stated in this regard that humanity is defined by both biological and socio-cultural functions of time, as evident, one the one hand. in the long history of biological evolution, and on the other, the importance of human history, and of cultural and personal development.

It is now pertinent to the discussion to bring in the consideration of theism, and this because of the ethical dilemma raised by the line of thinking so far. If we were to ask, with reference to the discussion above, what is the use, purpose, or essentially, value of a person? Would not functional logic point us in the direction of 'the needs of society'? Contrary to this logic, it is widely respected that the value of human persons is not to be regarded as dependent upon their performance, their position or their usefulness to society. This appreciation of human value as distinct from societal needs represents somewhat of a paradox, but in our age it is accepted as a public truth, although it has not always been like this, and still it is not valid in every corner of the world. This implies that "reality," as conceived by the majority, transcends the particulars of societies and peoples (Peacocke 2004b: 192) – or in other

made visible here This illustration depends heavily on a set of figures displayed in *Palace of Glory* (Peacocke 2005: 102-03).

words, this represents at least a weak reference to the 'public truth in religion'⁴³, although there could be other interpretations of the validity of this statement as well.⁴⁴

In order to push this discussion further we have to cross the border of what might be regarded as scientifically acceptable, if we have not done so already. It is time to discuss the concept of 'transcendence'. As previously stated, Peacocke has admitted that this term belongs to religious language. According to systematic theologian and editor of *Zygon*, Philip Hefner, scientific communities often rejects association with this term, even with hostility (Hefner in Peacocke & Clayton 2007: 68). If we again turn to semantics, we find that the use of this term is varied, but a couple of dictionaries⁴⁵ yields two distinct uses: (1) state of excelling or surpassing; (2) (philos., Kant) state of surpassing knowledge and / or experience. Peacocke affirms the philosophical understanding of transcendence as ultimately surpassing even human knowledge, but he still maintains that there is possible to acknowledge surpassing states in the natural world: one has simply to consider the intentional 'I' of our own experience as transcending the body (Peacocke 2004 [1979]: 133). Therefore, he operates with the composite term 'transcendence-in-immanence' for the perceived dimension of transcendence in the natural world, although centered on the reality of humanity in the world. In brief, his basic position is that in the process of cosmic evolution, the 'stuff of the world' has continuously surpassed itself by showing new emergent structures, levels of organization, and hierarchical systems of systems, which increasingly display features which elicit the full potentialities (or capacities) of matter. In short, this is the process whereby matter has transformed (or surpassed) itself into displaying a series of new features, and hence forward, to the emergence of 'mind'. Peacocke actually affirms increased 'complexity' as a broad feature common to the whole cosmic process, from atoms to humanity, and he makes reference to efforts in biology to formulate a measure for such complexity in mathematical terms. He then goes on to say that the human brain may very well be the most complex structure in the whole universe, and that it is at least a valid conjecture to relate increased complexity in the world to the emergence of consciousness (Peacocke 2004 [1979]: 158-60). This line of argument seems to generalize a tendency of complexification, hierarchical organization into 'systems of systems', and a series of emergent new features as steadily

⁴³ This is the title of the actual chapter within the book just referred to.

⁴⁴ An agnostic could answer that "public truth" is just a pragmatic solution of the relativistic predicament and negotiational (political) nature of human existence, cf. Steven Weinberg in dialogue with John Polkingthorne, accessed from <http://www.counterbalance.net/transcript/swjp-frame.html>.

⁴⁵ *Beolinguus*, source: Wordnet 2.0, (Princeton), accessed 2008-04-11 from <http://dict.tu-chemnitz.de>; *Funk and Wagnalls Standard Dictionary* (New York: 1965).

eliciting the potentialities of matter, as one rising tendency, if not exclusively⁴⁶ then most significantly, along the line of human "descent" to its current summit of humans-in-society.

In extension to the assumptions listed above, Peacocke focuses on the human being as the foremost example for this perceived 'transcendence-in-immanence' in the natural world. In other words, Peacocke affirms such old thoughts about the human state as being a 'microcosm', or in his words, "[a] miniature encapsulation of all-that-is" (Peacocke 2004b: 252). Although the terminology of 'transcendence' is mostly pertinent to human self-consciousness, in Peacocke's vision it is not exclusively so – the term is applied as a characterization of a tendency in the whole cosmic process, by way of the human analogy.

With the advent of humans, the world's processes has transcended themselves by becoming aware of themselves, leading to the category of 'person(s)', together with its subjective and objective aspects. This development, according to Peacocke, is significantly *expressive* of God's creativity as immanent in the world processes. But then, God also needs to be located as ultimately transcendent, since God is simultaneously seen also as the world's Creator. This represents the emphasis upon the ontological "otherness" of God, while God is still maintained as present in the world – a tension characteristic of Peacocke's pantheism (Clayton in Clayton & Peacocke 2004: vii). Human beings, in contrast to the 'transcendent-while-immanent' character of God, is better described as 'transcendence-in-immanence', that is, as ultimately passable and grounded, while still carrying transcendental powers, in that they, as forms of matter, display "more-than-matter" capabilities. Persons display subjective (i.e. transcendent) and objective (i.e. immanent) aspects. Humanity constitute both a starting point for talking about transcendence, and the analogy whereby transcendence in the world is traced back to the ultimate transcendence of the Creator. Upon this basis there is thought to exist a continuity spanning the complex whole which consists of the Creator, a world of matter, and persons – the latter being grounded in both the former. Bridging the ontological gap between the world of matter and the ultimate transcendence of God, the Being of God is present in a 'transcendent dimension' to the world. It is through an actualization of this dimension that the "personalness" of humanity gives a image (but admittedly a distorted one) of God (Peacocke 1993 [1990]: 239). Peacocke also hints at the significance of Jesus by asking if it would not be possible for a human being to be so radically open to this

⁴⁶ Peacocke states that the octopus represents a similar tendency along a different line of descent; cf "Robert Wright Interviews Arthur Peacocke" (Wright & Peacocke 2001).

transcendent dimension as to uniquely unveil the Creator God as present in the world (Peacocke 2004 [1979]: 212-13)?

Beside the proposition of human transcendence as related to the ultimate transcendence of the Creator God, Peacocke argues for a relation between human experiences of hope and the ultimacy of God. Peacocke refers to those 'theologians of hope'⁴⁷ who has engaged with the significance of the 'future' in a biblical perspective (Peacocke 2004 [1979]: 335). There seems to be more to the concept of 'future' than just physical time. It is also the "direction" in which we look to engender hope. There is an eschatological dimension to religious language that connects the present with the significance of the future.⁴⁸ For instance, Peacocke cites C. Braaten saying that "God is our Future" (Peacocke 2004 [1979]: 335). In such a perspective, the meaning of 'future' seems to blend together with the transcendent dimension previously discussed. The language is also similar, with Peacocke speaking about an axis of hope traversing the gap between humankind and God (Peacocke 2004 [1979]: 349). Peacocke illustrates this with a reference to R. Niebuhr, who has described the human predicament as that of a sailor climbing a mast on a boat at sea, but where the sailor feel anxious about the abyss below as well as the lookout to which he must climb (Peacocke 2004 [1979]: 336).

It would be fittingly here to provide some words about how Peacocke perceives the world as essentially being in the 'process of becoming'. In this respect, although with some major differences⁴⁹, Peacocke seems to be influenced by process theologians.⁵⁰ But it is Michael Polanyi's concept of boundary conditions, together with Peacocke's own interpretation of the role of 'chance', that make up his distinct "process philosophy." At first sight, Peacocke seems to speak of initial 'boundary conditions' with the same meaning as the 'anthropic principle' (Peacocke 2004 [1979]: 70-71), i.e. the proposed 'fine tuning' of the physical laws and constants allowing for a universe with conscious life. But Peacocke specifies that the concept carries a richer meaning when used in connection with living organisms, so that it includes the "constructing principle(s)" behind the integration of emergent causal features and the interaction between levels in a system (Peacocke 2004b: 73-74). The use of the

⁴⁷ Namely Lutherans like C. Braaten (*The Future of God*, 1969), J. Moltmann (*Theology of Hope*, 1967), W. Pannenberg (*Jesus-God and Man*, 1968), and P. Hefner.

⁴⁸ Concepts like 'eternal life', 'heaven' and 'Kingdom of God' as mentioned in *CWS* (Peacocke 2004 [1979]: 335).

⁴⁹ Peacocke does not approve of process theology's panpsychic assumptions, and has reservations against their negation of the doctrine God as Creator; cf. *CWS* (Peacocke 2004 [1979]: 126-27, 40-41).

⁵⁰ Peacocke refer notably to Gordon D. Kaufman.

concept represents an anti-reductionist proposal claiming that different principles and conditions operate to govern the organization of life at different levels, and so there are correspondingly different levels of description. Polanyi's example is that of a steam machine, in which the relationship between its major components is of another kind (i.e. 'engineering') than the relationship between parts within the components themselves (i.e. 'physics').⁵¹ This argument Polanyi utilized to illustrate the autonomy of biology in relation to physics and chemistry (Peacocke 1986: 23-24). To say it bluntly, one could imagine that while physics adhere to the constraints of physical laws and constants, biology is governed by the principle of survival.⁵² In this way, 'boundary conditions' is a broad term for influences and constraints operative not only on the level of fundamental physics, but also in succeeding and emergent levels, which eventually will entail questions about meaning and purpose. The setting is the scheme of cosmic evolution, which has eventually come to include the realm of human reality and culture. It is fairly obvious that this concept of 'boundary conditions' merges with Peacocke's view on God's mode of continuous interaction with the world, that is, as a matter of whole-part influence, where this influence is felt at every level, but most intensely so at the level of humanity. In Peacocke's own words:

"I am inclined to postulate divine top-down influences at all levels but with an increasing intensity and precision of location in time from the lowest physical levels up to the personal level where it could be at its most intense and at most focused." (Peacocke 2005: 116)

In Peacocke's view, the activity of God in influencing 'patterns' (or in Polanyi's terms: relationships of parts) on sequential levels in the cosmic evolution of systems, is only one part on the "hand" of God (i.e. 'Special Divine Action'). There are also a couple of other parts ascribed to God (i.e. 'General Divine Action'): (1) God is the Creator of the world, *ex nihilo*, in the meaning of the contingency of existence, in the way that there exists "anything rather than nothing" (Moltmann in Peacocke 2004 [1979]: 43-44); (2) God is the guarantor for change, by making a universe that is evolvable, *creatio mutabilis*, both in terms of its initial conditions that make it susceptible to change and the operation of chance within this framework, which includes 'time' (Moltmann in Peacocke 2004 [1979]: 80). As previously

⁵¹ I suggest that this has to do with the purposed function of the machine; that we cannot imagine a machine without a purpose, and that this purpose necessarily influences the organization of components, in contrast to the physical necessities influencing the internal organization of the machine's components.

⁵² It follows that there would be yet other principles governing personal and communal levels in nature. Just as a peculiar note, the US Supreme Court is conditioned by 'evolving standards of decency', according to their own understanding – cf. an article about the application of the death penalty in the *The Washington Post*, issue: 2008-04-13, accessed 2008-04-15 from <http://www.washingtonpost.com/wp-dyn/content/article/2008/04/13/AR2008041302602.html?wpisrc=newsletter>.

stated, Peacocke uses the image of God as "ringing all the possible changes [...] out of a given set of harmonious bells." (Peacocke 2004 [1979]: 105) This image of God as "musician", I suggest, brings out the associated image of God as a "laboratorian," experimenting with substances and results, but with the difference that God as "laboratorian" is more deeply involved in the outcome of these experimental processes.

I think that the proposed involvement of God in the processes of the world is significant in relation to the more orthodox aspects of Peacocke's writings: for instance his appraisal of the image God as one who "suffers in, with and under the creative processes of the world," (Peacocke 2005: 10) – as also espoused both by 'process theologians' and theologians more at home in a traditional setting, such as Jürgen Moltmann (Peacocke 2004 [1979]: 200-01). On the other side, there is a radical flair to Peacocke's theology. One such element is the concept of general revelation through the sacramental quality to the world as God's creation – a concept of revelation that subsume any specific cases of revelation (Peacocke 2004 [1979]: 242-43). Related to this is Peacocke's view on incarnation, where the special Incarnation (with capital letter) is subsumed under the provisional potential for transcendence in creation (i.e. 'transcendence-in-immanence') (Peacocke 2004 [1979]: 211-13). But these are topics better suited for the concluding chapter.

Preliminary conclusions

In Peacocke's view, the universe is a functional whole, a whole that is a *created* whole, and which is instrumental in its function as fulfilling God's purposes with the world. The universe also has active symbolic functions, as the very proposition of God's existence rises out of the world by its own powers. World-features such as 'systems of systems' and 'purpose' are laden with transcendence. As such, the world with its many facets actively communicates the immanence of its transcendent Creator.

Peacocke points to panentheism for a religious 'candidate for reality', and for a meaningful context for a world in the process of realizing its transcendental potential. Within a systems approach, this is the perspective of a 'system of systems' where ultimate reference is made to the Creator God. This "complex" Peacocke also speaks of in terms of a "biblical [...] understanding of the triangle of relationships of God-man-nature" (Peacocke 2004 [1979]: 287). In this view, transcendent humanity and nature belongs to the circumambient and

ultimate Reality of God (Peacocke 1993 [1990]: 192-93) – or what he elsewhere also speak of as God encompassing and being ultimately “more” than (i.e. transcending) the world. God ultimately transcends any of the manifestations of transcendence in the world, so that God ultimately is considered to be “other” than the world. Stated somewhat fumblingly, God is perceived to be the higher system wherein humanity and nature are parts, and transcendence in human experience (as well as in other emergent realities) has its source and reference in this higher Reality of God.

The universe is in a process that Peacocke characterizes as ‘complexifying’ and ‘personalizing’ (Peacocke 2004b: 77, 213). The inherent *meaning* in creation corresponds with this transcendent quality to the world, through which God is reflected, and is continuously made present through the evolutionary processes.⁵³ In considering such a ‘dimension of meaning’, humanity is admitted a certain ‘glory’ in manifesting God’s presence to a unique degree (Peacocke 1993 [1990]: 187) – and one human person especially, the Incarnate Jesus the Christ, is thought of as the focal point of, “many shafts of meaningful light dispersed throughout creation.” (Peacocke 2004 [1979]: 237) This perspective is compatible with the evolutionistic view, in which material structures self-organize and are subsequently integrated in organisms of increasing complexity, which in turn become open to the dimensions of time (Moltmann in Peacocke 2004 [1979]: 210). Meaning, potential and transcendence are interchangeable concepts in light of their common dependence on time in order to “come through.” In this connection it is also relevant to consider the way in which each new emergent level in reality reveals the freedom made available to it through the transcending of lower level constraints. Meaning, potential, transcendence and freedom are concepts which are most fittingly described as manifest on the level of organization in nature which is the ‘human being in society’, upon which we receive our experience of being transcendental, personal and intentional. We, as personal agents, simultaneously transcend and utilize material forms, without ever transcending materiality as the basis of our being. These aspects are summed up in the concept of an ‘axis of hope’ connecting humanity with God, that is, through the dimension of transcendence, in which “direction” we turn to for hope, and whereby change is manifested in the present, and the Ultimate Transcendent is made known.

⁵³ Peacocke refers to the understanding of the divine Logos as an expression of the ‘meaning’ inherent and made manifest in the making of the world, as in J. Macquarrie’s interpretation of the prologue to the Gospel of St. John; cf. *TSA* (Peacocke 1993 [1990]: 297).

In Peacocke's vision, the world in general is a 'a physical nexus of matter' (or 'matter-energy in space-time'). If this initially featureless 'world of matter' is imagined as projected onto a two-dimensional plane, then the inherent dimension of transcendence could be thought of as a third dimension to this, or in other words, the dimensional quality to what Peacocke speak of as 'transcendence-in-immanence', could be imagined as a topographical potential available to the world of matter being in the process of eliciting its potentialities. This image is merited in Peacocke's own elucidation of the panentheistic spatial model, where human beings are said to extend beyond the boundaries of the world, "with their feet placed firmly in nature but with their self-consciousness (perhaps represented by their brains?) protruding [into God]" (Peacocke, Murphy et al. 1995: 139).

Chapter III: Speaking of God in an Age of Science

The view of a critical scientist

Upon the minimalist theistic affirmation that the inbuilt creativity of the evolutionary processes of the universe in fact is representational of God (Peacocke 2004b: 179), Peacocke starts a thorough critique of the *modus operandi* of contemporary – and then especially neo-orthodox⁵⁴ – theology. Peacocke rebukes biblicism, traditionalism and fundamentalism to such a degree, that it seems likely that some parts of Christendom will not take his opinions very seriously. One way of dealing with this discrepancy would be to acknowledge that Peacocke's harsh critique comes from the standpoint of a natural scientist who has received training in theology without giving up one for the other. Even if Peacocke was a "player" on both fields (i.e. science and theology), a clue to the perspective from which he judges theology comes from his motto, "understanding seeking faith" (Peacocke 2004b: 175). However, a 'traditionalist' could delineate theology from philosophy as "faith seeking understanding," as opposed to the other way around (John Paul II 2002). In the late Peacocke there seems to be a interest in 'integration' of the two opposed fields on the basis of a shared reality, and the limits pertaining to 'dialogue' in this respect (Peacocke 2004b: 174). Peacocke's proposals seems destined to meet resistance on both sides of the divide, because of this attitude, that is, with his rather positive affirmations of the full compatibility between the traditions of the Christian religion and science.

Even if Peacocke speaks more from the standpoint of a scientist than a theologian, he has an interesting vision of a theology that could become capable of interaction with wider society and gain general approval. He sees this as an opportunity arising from a change in the philosophical foundations of science, where 'foundationalism'⁵⁵ has given way to more open strategies for establishing knowledge, ways that admit room for philosophy. The explanatory approach of 'Inference to the Best Explanation' (or IBE) is somewhat of a marker in this connection (we will consider this a little later). From the science side of the divide, Peacocke states that science has offered a lot over the last decades of science and religion dialogue, and that the ball now has landed with the theologians (Peacocke 2004a: 427).

⁵⁴ Peacocke do not bear easy on the Barthian way of doing theology; actually he compares it with medieval theology; cf. *Evolution* (Peacocke 2004b: 160).

⁵⁵ Peacocke defines 'foundationalism' as a strategy, where inflexibility and infallibility is maintained by appeal to some item of knowledge that is self-evident or undubitable; cf. *Evolution* (Peacocke 2004b: 272 n. 15).

The "integrationalism" of Peacocke with regard to religion (or theology) and science is worth some consideration. Peacocke's advocacy for 'integration' could be seen in relation to his lifelong efforts to bring religion into scientifically educated circles⁵⁶ (and *vice versa*) – an effort that probably came with a cost to his professional standing within the "segregated" worlds of science and of religion. Is it thus reasonable to think that Peacocke urged the unification of science and theology from a basis in his own experience of commitment to both. Peacocke does give some clues as to what is at stake with this perspective. He makes a reference to a series of conferences over the concern for spirituality in science (published as a book, Richardson 2002), and with this backing he claims that *the search for intelligibility* (or generally, "science"), and *the search for meaning* (or generally, "religion"), can work together in concert to support and enhance each other, like it has for many scientists (Peacocke 2004a: 416). It seems credible, from this perspective, that religion and science should not be divided into more or less intensely opposed camps, where dialogue is possible only on an occasional basis, when 'religion' and 'science' could come together as aspects of an holistic 'spiritual quest' (part of the book's title, Richardson 2002).

A theology grounded in reasonableness

The IBE (also known as abductive reasoning) as a method for explanation were first discussed by Charles Sanders Pierce⁵⁷, but later introduced in scientific circles shortly after WWII, as by John Wisdom (Peacocke 2004b: 172). According to Philip Clayton, IBE is representative for a scientific sentiment that has moved from "foundationalism" in direction of "holism" and "coherentism" (Peacocke 2004b: 172-73). Simply stated, IBE is in principle an approach which is applicable where several explanations are possible, but where *one* could be chosen that would cover more facts and more classes of facts than any other. In other words, IBE looks for the explanation where most independent features of a case *converge* in favour of the conclusion (Peacocke 2004b: 172). This method presupposes that there are "in fact" facts from which to start inferring explanations.⁵⁸ One simple example is the inference of "it probably rained" from the observation "the grass is wet."⁵⁹ From this example it becomes obvious that one or more observations may have several explanations, but some which are more and some which are less probable. As science approaches the

⁵⁶ Cf. "Preface" in *God and the New Biology* (Peacocke 1986).

⁵⁷ "Abductive Reasoning", in *Wikipedia, the free dictionary*, accessed 2008-04-18.

⁵⁸ *Ibid.*

⁵⁹ *Ibid.*

boundaries for what might be observed or empirically verified (or falsified), the differences between modes of rationality such as philosophy and science diminishes. Therefore, in the IBE approach, explanations can be evaluated by philosophical means. Other than the criteria of 'coherence' and 'probability', there could be thought of other means whereby to evaluate explanations, such as simplicity, precision, provision of causal mechanisms and fitting with data (Peacocke 2004b: 171).

It is not hard to see that IBE could be utilized as a platform for the integration of science and theology, and this is just what is argued by Peacocke (Peacocke 2000). When practised honestly, openly and without preconceptions, the method of IBE should yield agreeable and truthful conclusions, while it is obvious that any conclusion would be open for revision.⁶⁰ This emphasis on 'openness' is central to the theological enterprise of Peacocke, and he speaks in terms of an 'open theology' (Peacocke 2004a: 413), in the meaning of a quest for public truth in religion that would be open to public discussion. Such a theology would aim at being *reasonable*, as all other forms of human inquiries (Peacocke 2004b: 193).

On the basis of reasonableness, Peacocke's view on authority in religious issues is quite radical. He asks, "where is the warrant for [religious] authorities?" (Peacocke in Richardson 2002: 230) He criticizes especially two forms of religious authority: (1) Scripture, because of its internal character of self-critical progress, its age and reference to a distant time, and its character of being a collection of major writings (Peacocke 2004 [1979]: 278; 2005: 50); (2) Community (i.e. doctrine, teachings), because of its self-referential logic and linguistic-grammatical type of discourse which delineates itself against the "outside" (ibid.).⁶¹ Giving up claims on religious authority in this way, is not equal to giving up theology all together, but it clears the ground for engaging seriously with a world outside of theology. 'Classical revelatory experiences' (i.e. scriptures etc.) would still constitute a major source for doing theology. But in Peacocke's vision for a new theology, the body of scientific knowledge would also be included in the sources for theology. Eventually, in order for theology to fully step out of its discourse, it would also have to consider the perceptions and traditions of other

⁶⁰ It could be argued that the method of IBE is also implied for a whole range of natural scientist that conclude on religious issues in popularized works on science. In fact, Peacocke himself describes the basis of IBE as the "God-given lingua franca of human discourse"; cf. *Evolution* (Peacocke 2004b: 175). This suggests that the method of IBE could be vulnerable to the fallacy of rethorics.

⁶¹ In this, Peacocke refers especially to the *modus operandi* of functional language outlined in George Lindbeck's work on the function of doctrine; cf. *The Natur of Doctrine* (Lindbeck 1984).

World Religions (Peacocke 2004b: 176).⁶² Such a development would mark the beginning of a '*Global Theology*' (Peacocke 2004b: 176).

If scientific knowledge is to constitute a source for theology, it implies that certain scientific facts would lead to certain amendments to theological images and metaphors. An example close to Peacocke's own theological enterprise is the role of 'chance' in the evolution of life. It follows that the image of an omnipotent Creator needs some qualifications, and Peacocke suggests the image of a *self-limited* omnipotent God that utilize chance in interplay with necessity in the creative process of evolution – or what might be imagined of God as an "explorer" or "experimenter" (Peacocke 2004b: 180).⁶³ This is just one example of the many reconsiderations that Peacocke suggests, and especially in light of biology.⁶⁴ Besides from contributing with facts that would need to be absorbed by theology in this manner, science would also work upon theology to constrain its metaphysics (Peacocke in Password 2007: 209). These constraints could be thought of as the boundary conditions pertaining to the different levels of organization and emergent realities in nature, as explored and described by the sciences.

However, with regard to the impact of science on theology, there is still room for questions of existential meaning and ultimate reference to be tackled by religion, and as such by theology. Basically, science and theology are not mutually exclusive, but the latter extends beyond the limits of the other, by pressing the question 'why?' (cf. chapter I). Besides, Peacocke relates experiences of Ultimate Reality to the operation of God's grace within the created order – as a force which does not "remove" from the world, but influences human beings to go "deeper" (Peacocke & Clayton 2007: 51).

In short, Peacocke proposes standards for theology which run contrary to contemporary tendencies for neo-orthodoxy, and instead proposes progress in realism as a way to match the natural sciences in being accessible to a general public. The main distinctive feature of theology as against science would be theology's reference to God as the Ultimate Reality

⁶² Peacocke's theological enterprise would probably benefit by comparison with other religious traditions. For instance, a comparison between his emergent monist philosophy and the Buddhist anthropology, I suggest, could yield a mutually informing perspective.

⁶³ Another important image that Peacocke uses, is that of God as a composer, cf. inter al. *CWS* (Peacocke 1979 [2004]). Although he does not make the reference, it seems that Peacocke's views converge with Hans Urs von Balthasar in this regard. Peacocke has also co-authored a book together with Ann Pederson called *The Music of Creation*, in the series: *Theology and the sciences* (Minneapolis: Fortress Press, 2006).

⁶⁴ Peacocke points to the widespread diffusion of the evolutionary view on life with associated image of humans as 'rising beasts', as in conflict with particularly the Christian doctrine of 'original sin'; cf. *Evolution* (Peacocke 2004b: 179-81).

(Peacocke 2004b: 182; Peacocke & Clayton 2007: 5). The radicality of this approach seems to come close to methodological agnosticism, as in fact evident when Peacocke states, "[do] not be afraid to be agnostic when the evidence does not warrant positive assertions" (Peacocke 2004b: 177). He points to Hans Küng for such a model for theology, that could be summarized as "free, critical and ecumenical" (Peacocke 2004b: 173-74). Such an 'open theology' would enable itself to deal with all the realities that constitute the world, but with confidence that it will lead to a confirmation of the objective reality of God, and in addition, God's presence in the world, and the purposiveness in natural processes (Peacocke 2004b: 176-77).

Peacocke's vision of theology in an age of science

Peacocke's vision for theology could seem void of references to either sincere beliefs or piety, but he tries to make a distinction between theology *per se* – that is, theology envisioned as public discourse, and religion *per se*, as personal and communal spiritual life and worship (Peacocke 2004b: 175, 78). Thus it would be required of theology to speak the "lingua franca of human discourse," which above all is characterized by reasonableness (*ibid.*). Such a theology could be seen as an abstraction from religious life, but capable of explicating the intellectual content of the latter (*ibid.*). This "objective" mode of theology would still care for meaning and purposiveness in the world, which in turn would provide theology with its justification (Peacocke 2004 [1979]: 41). But if theology is to arrive at valid conjectures of meaning and purpose, this can only happen by way of the sciences, so that theology come to enrich the scientific worldview with an account of God's purposes and implanted meaning in the world (Peacocke 2004a: 182). Peacocke does in fact refer to this method as possibly characterized as "'thick" theology' (Peacocke 2004a), a designation which obviously suggests a link to the distinction between the factual and meaningful in cultural anthropology.⁶⁵

The presentation above would leave a bleak image of Peacocke's vision for theology, if it were not for Peacocke's centeredness on the significance of Jesus *the* Christ for humanity. But he does not present anything near a 'high Christology', as hinted by the '*the*' between 'Jesus' and 'Christ'. The message delivered by Peacocke is this: Although it is impossible to establish a high Christology on the basis of historical evidence, there is a good basis for the

⁶⁵ Cf. f.i. Clifford Geertz, "Thick Description" in *The Interpretation of Cultures: Selected Essays* (1973).

claim that Jesus was significant in his relation to God, this being a relationship which according to Peacocke was characterized by a unique openness to God. But where this relationship to God not necessarily was very different in *kind* from the potentiality of any human being (Peacocke 2004 [1979]: 222-23). Jesus displayed openness to God in such a way that transcendence-in-immanence was manifested in a unique manner, upon which the Christian concept of 'incarnation' is constituted (Peacocke 2004 [1979]: 213).

Thus it is the *revealed* significance of Jesus' life, death and resurrection⁶⁶ for the lives of all of humanity, which induces the title of 'Christ' (Peacocke 1993 [1990]: 283-87). Jesus is brought to the center of human concern by the question, "What can we know of God's meaning for man?" (Peacocke 2004 [1979]: 217). In Peacocke's words, "the person of Jesus is the reference point, the claimed resource in our culture for our search for meaning, the central question for us as we look for God's meaning written in a world now described by the sciences" (ibid.). It follows that Jesus represents generally God's self-communication on all levels of creation including that of humanity, but also that Jesus can be seen as the ultimate potentiality of humanity (Peacocke 2004 [1979]: 234-35). But concerning God's purpose with humankind, Peacocke proposes that Jesus' final ascension into heaven represents the beginning of a fulfilled humanity (Peacocke 2004b: 147).

Peacocke's scientific-rationalist sentiment overshadows his theology, which seems bleak and anemic in comparison to theologies more affirmative of traditional doctrines. It is also evident from his references that he has listened to other theologians a lot. Jürgen Moltmann and Wolfhard Pannenberg are two protestant theologians that are often referred to in Peacocke's works, but other parts of Christendom are represented as well - for instance by inferences to Vladimir Lossky (i.e. Russian Orthodoxy) and Teilhard de Chardin (i.e. Roman Catholicism).⁶⁷ Peacocke's theology might be said to fulfill his own requirements for a new theology, in that it is ecumenical. But on the other side, however un-affirmative Peacocke's theological stance might seem, he has contributed importantly to 'fundamental theology' by demonstrating that within a materialistic-naturalistic outlook, there can in fact be room for religion – and so for theology – and that theism might even be considered the best

⁶⁶ Peacocke affirms the central belief in the Resurrection on the basis of the kerygma, but he gives it a "naturalistic" interpretation in the direction of a 're-created' and 'glorified' body independent of the body in the tomb; cf. *TSA* (Peacocke 1993 [1990]: 283-87).

⁶⁷ In *Evolution*, Peacocke also cites the Roman Catholic systematic theologian Karl Rahner (1966) at length (Peacocke 2004b: 29-31). It would make for an interesting project to examine the commonalities between the theologies that Peacocke associate himself with.

explanation to a *cognizing* universe, which ultimately is constituted by some sort of particles of lifeless matter. His argument for hierarchical levels in nature, emergent levels of reality and corresponding manifestations of transcendence, makes for a strong link between an intelligible created order and a Creator God.

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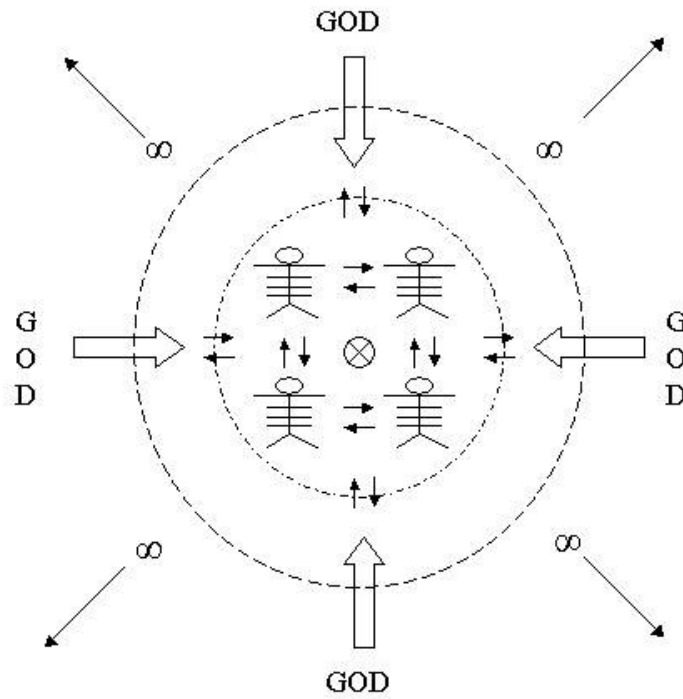


Figure 1. Diagram with a spatial representation of the ontological relations and interactions between God, the world and humanity.

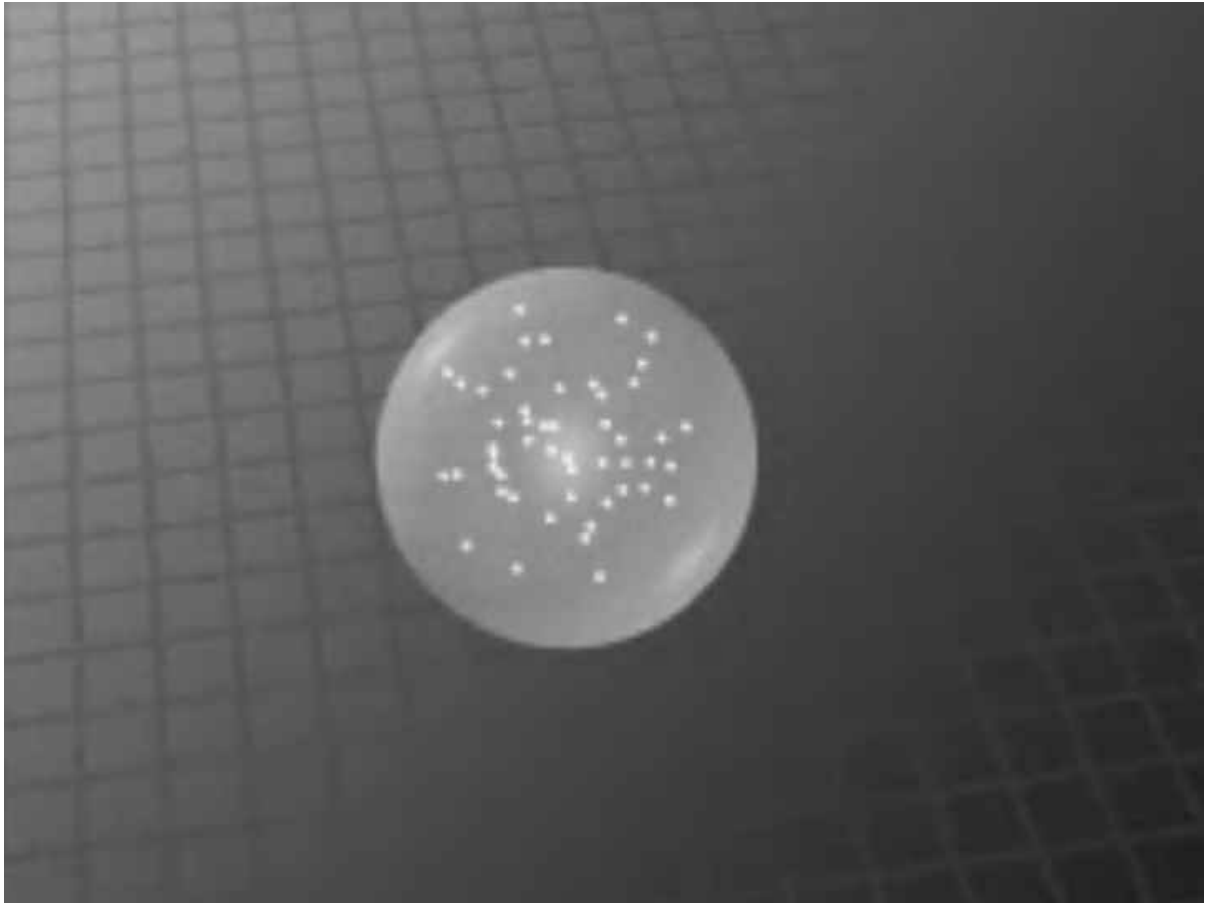


Figure 2. An expanding universe imagined as a 'vast cosmic ocean' afloat in a undefined substance.

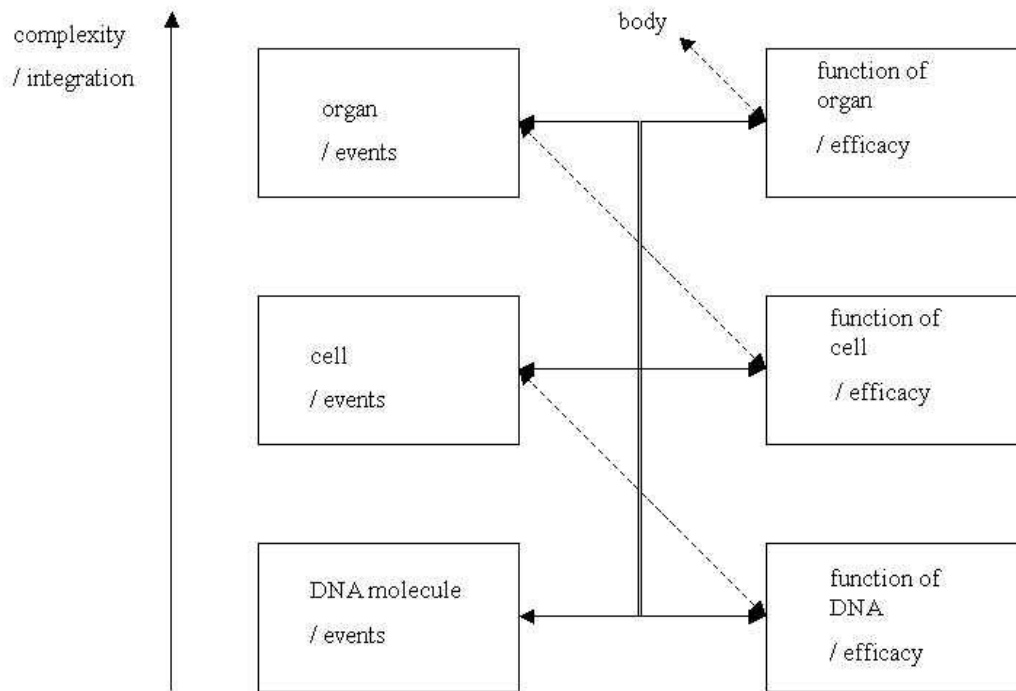


Figure 3. An illustration of hierarchically related 'system of systems'.