

Seeing human personhood through science-religion-arts-ethics: an exercise in new-style natural theology

Peter Barrett

Emeritus professor, School of Physics,
University of KwaZulu-Natal, Durban, South Africa

Introduction

This paper offers a collage of ideas about the origin, nature and ultimate significance of human personhood, as viewed through a new-style natural theology (hereafter referred to as NNT) that is emerging from the science-and-theology, or science-and-religion, of the past four decades. This hyphenated name refers to a wide-ranging discourse that has become a loosely structured discipline in its own right.ⁱ

The discourse was provoked by one of the great scientific discoveries of the 20th century, namely that the universe itself has a history. It has undergone a 13.7 billion year process of expansion and cooling, together with the formation of a vast number of solar systems – and in at least one of these an astonishing variety of life has emerged, including human beings who can think and reflect on the nature and meaning of it all. Science indicates that we are part of a vast, multifaceted evolutionary process, operating on cosmic, terrestrial and biological scales, and that the entire range of human cognitive power stems from this process.

In the following section we note the succession of increasingly complex entities that have gone into the making of human personhood with its remarkable capacity for abstract thought. Here it may be assumed that it is the higher levels of cognition – those of reason, conscience and, especially, imagination – that have allowed the development of religious belief into the sophisticated forms expressed in today's world.

The hierarchy of physical complexities and mental capacities arising from the world's evolutionary processes is presented in the form of a table, together with the spectrum of associated academic disciplines.

In the third section we turn to the notion of religious belief as at least a quest for meaning – as the attempt to understand the place of human life in this cosmic 'cradle of human existence'. Since the cognitive sciences show the importance of narratives in conveying meaning and understanding, we go on to discuss the human need for metaphysical engagement, especially the forming of a grand narrative of the created order.

Next, we outline how metaphysical ideas drawn from science-and-theology are used by Anthony Monti to explore the theological thesis that what is significant about great works of art is not only their extraordinary power to convey meaning but, indeed, their capacity to convey something of the 'real presence' of God.

We then consider the deep-seated moral dimension of personhood, seeing it not in the socio-biological terms of a Darwinian-rooted exercise of altruism but as a theistically based morality, operating as awareness of and response to 'the good'. Here we discuss the foundational idea that the pursuit of the good constitutes the world's *raison d'être*, outlining George Ellis's scheme to broaden the world-picture of cosmology into an ethics based Cosmology.

Finally, we point to the title of this paper as a way of envisaging the role of NNT. This suggests a bridging and integrating mode of inquiry, linking the main insights of Christian tradition to key ideas in the sciences and humanities (as shown in a second table). NNT is then well placed to play a constructive role in the academy and in society at large.

The making of human personhood

The emergence of *Homo sapiens*, at least 160 000 years ago, was marked by a substantial increase in powers of cognition. Paleo-anthropologist Stephen Mithen (1996) offers a tentative but compelling account of the prehistory of hominid cognition, in which the mind/brain advances from a configuration of three separate modal intelligences (concerned respectively with social, technical and natural world intelligence) to a state of full 'cognitive fluidity'.ⁱⁱ This phrase implies not merely enhanced complexity but also flexibility and dynamic interaction between the different parts of the brain, making for greatly advanced cognitive ability through the operation and interplay of perception, reason, emotion, intuition and imagination. Jeremy Law (2007) describes the advance thus:

A consequence and catalyst of this process is language and self-reflexive consciousness which escape from their originating function in social intelligence to be the ground for a mind that can examine and integrate thought and knowledge about the natural world, the social world, and technical process. What emerges is the ability to think symbolically.

Law refers to the development of cognitive fluidity as a key factor in the cultural 'big bang' that occurred about 70 000 years ago in Africa and 40 000 years ago in Europe, as migration from the former impacted culturally on the latter. He continues:

This manifested itself in the onset of cave art, musical instruments, new tool technologies, sea-voyaging, body decoration, and elaborate burial of the dead. Religious sensibility, social stratification and symbolic codification are its legacy.

Thus cognitive finesse gave rise to greatly enhanced levels of creativity in tool-making and social organisation – also in symbolic representation, especially in language, art, and religious belief and ritual. The progression may be summarised thus: modal intelligences → cognitive fluidity → capacity for metaphor and symbol – > religious belief with its quest for explanation and understanding → culture in all its richness.

The evolutionary story of *Homo sapiens* may be seen as one of genetic and cultural co-evolution (Rolston 1999:112-120). It raises the question whether such a build-up of mental complexity was an inevitable consequence of the operation of the laws of nature. Noted evolutionary biologist Ernst Mayr emphasises the severely contingent nature of cognitive advance in human history. It is so clearly unique in the entire history of life on earth that, "in contrast to eyes (say), an evolution of intelligence is not probable" (Rolston 1999:114).

On the other hand it is also argued that the genetically coded rise of brain power and intelligence almost inexorably "transcends itself and passes over into something else" – into the 'wisdom', peculiar to *Homo sapiens*, that is passed on rapidly, over many generations, in the form of cumulative, transmissible cultures (Rolston 1999:112-114). In section 4 we discuss this attribute under the alternative name of 'tacit knowledge.'

Much new knowledge of the physical and mental makeup of human beings has been acquired in recent decades, especially through the neurosciences. And the methodological reductionism needed in the study of that makeup (whether in microbiology, biochemistry or neurophysiology) has led some practitioners to view the human being as no more than a complex material entity. This was expressed by Francis Crick (1994:3) in his well-known dictum:

'You', your joys and your sorrows, your memories and your ambitions, your sense of personal identity and free-will, are in fact no more than the behaviour of a vast assembly of nerve cells and their associated molecules. As Lewis Carroll's Alice might have phrased it: 'You're nothing but a pack of neurons!'

Most scientists would disagree, no doubt, since an assembled system is invariably more than the sum of its parts, especially in the case of such a complex entity as the human brain. There occurs in nature's evolution, it may be argued, the emergence of ontological novelty, first in the phase change from inanimate to animate entities and later in the appearance of consciousness. Crowning the whole evolutionary process up to the present juncture is the full development of human cognitive power, with its ability to transcend the realm of the material and explore the notion of a hierarchy of levels of existence.

That which constitutes human personhood is expressed thus by John Polkinghorne (2000:11):

By a human person I mean at least a self-conscious being who is able to use the future tense in anticipation, hope, or dread; to perceive meaning and assign value; to respond to beauty and to the call of moral duty; to love other persons, even to the point of self-sacrifice.

He adds to this list the capacity to sense a Reality beyond oneself, worthy of worship and obedience.

All these distinctive characteristics contribute to the fullness of being of the human person, but for the purpose of this paper we focus on the capacity to perceive meaning and assign value – a feature that involves all the aforementioned elements of cognition.

The late appearance of advanced cognitive powers in cosmic history (at 'five minutes to midnight on the last day of the year') is, of course, a reflection of the degree of complexity needed in the course of nature's evolutionary unfolding. Table 1 below shows one way of listing the successive physical and biological entities that have culminated in the evolution of animal life forms, together with the later co-evolution of the mental capacities that constitute the human mind.

Table 1. The physical systems and mental capacities involved in the making of Homo sapiens – plus the groups of associated disciplines, constituting a spectrum of modes of rational inquiry.

The successive entities in the table represent a progression from universality at the bottom end – carbon atoms, for example, are all identical – to the uniqueness of human persons at the top end. The mode of knowing, too, depends on the nature of the subject-matter, ranging from the mathematical in physics to the metaphorical in theology and the humanities. Here soul is thought of as the inner being that makes for deep personal relationships, and imaginationⁱⁱⁱ is viewed as that which integrates perception, reason, intuition and emotion, especially in high-level assessment and creativity.

The quest to know – a key element of religious thought

Thomas Aquinas's famous 13th century opus, *Summa Theologiae*, is acclaimed by some as perhaps the greatest feat in intellectual history, imaginatively combining key elements of Greek philosophy and Christian theology into a unified work of philosophical theology. It was an ambitious attempt to understand divine, cosmic and human existence as a whole, drawing widely on then available philosophical, theological and scientific insights. It stemmed, surely, from the ever present human desire to know and explain not only the way the world is but also its underlying purpose and meaning.

The *Summa Theologiae* is to a large extent a work of metaphysics – and it has become increasingly clear that science-and-theology, with its similar concerns, is vitally and unavoidably linked to metaphysics, with its elements of ontology, epistemology and axiology – that is, with the multi-levelled nature of reality (contra the reductionist stance of the physicalists), the manner and constraints of human knowing, and ultimate questions about values and meaning. All three elements contribute to the making of religious belief and of worldviews in general.

No doubt the imperative to understand and explain (through imaginative reasoning) arose as the cognitive tools developed, made possible by the remarkable capacity to conceptualise and comprehend that which is the focus of attention. In this task the mind draws on the vast array of memory elements that constitute its store of subconsciously held 'tacit knowledge', which is described in the next section.

Thomas Torrance (1984:114) describes the process of comprehending as

an intuitive anticipation of hitherto unknown pattern, or a novel order in things, which arises compellingly in our minds under the surprising disclosure of the subject-matter – an act in which the understanding leaps across a logical gap in the attainment of a new conception.

Such a leap is a high-level activity of the imagination, hence the high place of imagination in table 1.

Humanity's quest for meaning and understanding is the topic of the paper by Jeremy Law (2007) cited above. He sees the distinctive theological challenge of the evolution of life by natural selection not primarily as that of theodicy – concerning the suffering, death and wastefulness involved – but as one of meaning. We are the products, he claims, of a thoroughly contingent process in which there is no scientifically discernible purpose to our existence, no necessary telos. He continues:

Yet the question of meaning is the human question par excellence. Our ability to ask it is probably one of the more important ways in which we are distinguished from all our hominid forebears. It is not enough,

however, to assert that Homo sapiens are the makers of meaning ... If meaning matters to us it is, I suggest, because we are makers of meaning as a corollary of our nature as seekers of meaning.

At the heart of the development of human cognition is the determination to see and interpret patterns in the data received. Cognitive scientist Peter Gärdenfors (2008) makes the point that the ever present search for understanding involves perceiving a pattern, and that the human brain is superbly made for this task, whether in everyday quests for explanation or in response to the larger questions of human existence. He adds that narratives are excellent tools for conveying understanding, with myths and stories playing a crucial role in transmitting knowledge about causal relations.

Before discussing the quest for meaning from a theological or religious standpoint, we may note the contrasting approach associated with the 'new atheism'.^{iv} There religious belief is thought to arise solely from social and psychological pressures, and its content is often thought to be held irrationally even if, for some, religion itself plays the useful role of promoting social cohesion and moral behaviour. This faction includes such notable writers as Richard Dawkins, Daniel Dennett, Sam Harris, Christopher Hitchens and Lewis Wolpert.

Wolpert claims that humankind's incorrigible and wholly irrational religiosity is at least partly genetically determined and originates in our addiction to explanations. As he puts it, we make gods and religious systems for the same reason that we make tools. Religion is as human and as explicable as the flint axe and the computer – it is a tool for the soul. Religion is a natural consequence, he claims, of how we are wired as human beings; we have an inbuilt belief engine.^v

The hard-wiring claim is interesting but, first, any explanation offered in purely socio-biological terms, plausible or not, is clearly no more than an account of cognitive process – it cannot of itself show the existence or non-existence of God. Second, the often heard, sweeping claim that belief in God is irrational seems almost always to be made carelessly, without proper epistemic foundation, especially with respect to what constitutes rationality in the different areas of intellectual inquiry. And third, although it may well be the case that a particular hard-wiring is responsible for the initial evolutionary urge towards religious belief, later development is likely to be driven far more by cultural factors, especially through the aesthetic drawing power of the conviction that God is not only real but is also the source of all perfection – of all that is true, good and beautiful.^{vi}

Furthermore, it is arguable that those who suggest a future in which machine intelligence will far surpass that of the human being, as machines learn to communicate, teach and replicate among themselves,^{vii} greatly underestimate the complexity of the integrative work of the human mind/brain. The capacity to perceive and assess data patterns probably depends more on the qualitative factor of flexibility than the quantitative factor of data-handling power.

On the theological side we may note again Jeremy Law's remark that human beings are not only makers of meaning but, especially, seekers of meaning. Theological reflection will seek meaning by reference to God, he remarks, and for the Christian thinker it will be reference to God as Trinity. Here he refers to the Trinity as "the highest integrating summary of the Christian intuition concerning the being of God revealed in redemption and creation".

At the heart of the work of God in this world of evolutionary process is the incarnation, memorably expressed by St Irenaeus: "God became like us that we might become like him." Law refers to this human-ward move as a matter of both the Word becoming flesh and flesh becoming the Word. He asks:

Was it not also necessary for flesh to become (capable of) words; that is, for there to have emerged a creature capable of language, reason, symbolic thought and a relationship beyond the immediately

demonstrable world? Is not the enabling ground of the incarnation the evolution of the embodied mind of Homo sapiens?

And because the emergence of humanity was a contingent process, he adds, there was no guarantee that precisely this individual would come to be. Law thus continues to set the scene for a high conception of humanity in relation to the Trinity.

Such theological theorising represents the search for knowledge of God and involves the same sort of exercise of a questing imagination as in scientific research (see endnote 3). It constitutes a major formative factor in the development of a Christian worldview. But so too does the often profound experience of beauty (mentioned above and in endnote 6). In its variety of forms, natural, intellectual, moral, spiritual and divine, it can penetrate to the heart of human personhood. The human capacity to experience beauty and to create it is, of course, a concern of the realm of the arts, the subject of the next section.

A natural theology of the arts

The case for theological engagement with the arts – a recurring task – was argued notably by Howard Root in the early 1960s and has since been advocated by Polkinghorne (1994:44-45) and others, especially The Institute for Theology, Imagination and the Arts at St Andrews University (Scotland). For Root (1962:18) the main challenge faced by theologians was “to regain contact with the mind and imagination of the most sensitive segment of our society, that of the poet or novelist or dramatist or film producer.”

Although NNT has been mainly concerned with linking insights of Christian theological tradition to those in the sciences, this can readily be extended to the arts where there is a key role for the faculty of creative imagination. Here we indicate briefly how this task of extrapolation has been approached in the case of the late Anthony Monti's *A natural theology of the arts* (2003), which is based on and inspired by Polkinghorne's writings.

Monti read these perceptively and appreciatively and, with a strong grounding in English literature and a substantial knowledge of theology's links with philosophy and aesthetics, saw them as a resource to be used against the prevailing relativism in the deconstructionist world of literary studies – and, indeed, as a launching pad for the writing of his book.

He was also drawn to George Steiner's *Real presences* (1989) with its thesis that it is the 'real presence' of God that underlies great works of art – a book filled with impressive insights yet criticised by some for being long on wagers but short on warrants, needing therefore to be complemented by a systematic elaboration of this central claim. In his own book he aimed to address the challenge by setting out the epistemological, metaphysical and theological grounds for Steiner's thesis.

Monti draws first upon the work of scientist-philosopher Michael Polanyi, especially the idea of tacit knowledge. This fruitful concept – largely underplayed in science-and-theology discussion – is described in detail by Torrance (1984: 107-173) and often referred to by Polkinghorne and Monti.

Tacit knowledge is the essential background knowledge against which scientific research is carried out. More broadly, it is the accumulated wisdom and understanding that resides in any scientific, cultural or religious tradition and is learnt through apprenticeship in the tradition. It acts as the 'spectacles behind the eyes' in all high-level cognitive activity. It is knowledge that cannot be altogether explicitly expressed ('we know more than we can tell'), but is nonetheless relied upon in the exercise of the imagination as it apprehends the sometimes surprising disclosure and intrinsic claim of the subject matter (Torrance 1984:114). This requires a leap of an imagination that has been attuned sympathetically to the subject matter, a leap from the random observation of phenomena to the hypothesis of a pattern (N T Wright 1992:37) or, indeed, to artistic insight or expression.

For Monti (2003:17) it is the understanding that comes through tacit knowledge that constitutes the hinge on which his entire project turns. He also makes use of Polkinghorne's controversial yet metaphysically well-supported concept of the flexible openness of macroscopic systems.^{viii} Polkinghorne (1988:73-74) regards the many-particle or many-element systems that make up the material world as not rigidly mechanistic, showing a degree of looseness in their causal networks. He claims that their behaviour is not simply unpredictable (an epistemic limitation) but nondeterministic (an ontological characteristic). And it is the flexible openness in the working of the human mind/brain that allows the attuned imagination to play its exploratory role, especially in the handling of the metaphoric – that which characterises works of art in their open-ended capacity to convey meaning.

Wright (1992:40) offers a vivid description of the conveying of something new by means of a metaphor. This consists in

bringing two sets of ideas close together, close enough for a spark to jump, but not too close, so that the spark, in jumping, illuminates for a moment the whole area around, changing perceptions as it does so.

And as Monti (2003:61-62) points out, there is a further level of integration in the conveying of meaning: that of the metaphor as a whole and the attuned imagination as it indwells the metaphor, thereby gaining access to its meaning. But it is meaning that “reaches out beyond us in an indeterminate range of intelligibility” (Monti 2003:19, 22).

Now a work of art is essentially metaphoric in its juxtaposing of different ideas or images whose togetherness gives it its power to convey meaning. “Understanding in art and literature comes from the power of the whole,” says Polkinghorne (1994:38), “through intuitive grasp rather than detailed argument – and intuitive grasp requires the exercise of imagination informed by tacit knowledge.” Elsewhere (1991:30) he remarks that “metaphor can carry us into realms of thought which would otherwise be inaccessible.”

Here Monti (2003:35) invokes the concept of a transcendent, multi-levelled reality – a stratified ontology ranging from the realm of the physical to the meta-level of the being of God^{ix} – that beckons us on to unending questioning through its intimations of hidden dimensions of order and meaning. In Polanyi's view, as we move through these levels of reality from the more tangible to the more intangible we penetrate to things that seem increasingly real and full of meaning – the deepest reality, he claims, is possessed by the higher things that are least tangible (Torrance 1984:159).

These higher levels of reality are the concern of much artistic creativity. They are commonly understood and expressed in metaphoric language and imagery which, in turn, are received and apprehended through the spectacles of tacit understanding. Altogether Monti (2003:137) sees profound art as, in the words of W H Vanstone, “the creativity of recognition ... directly and explicitly responsive to the blessing conferred by the creativity of God.”

The origin of moral values and conduct

As we proceed through the four main dimensions of human thought and experience – religion, science, the arts, and now the realm of moral choice and practice – we find ourselves needing a framework, perhaps some open-ended widely embracing meta-narrative, in which to hold together such a broad range of reflection.^x This requires an organising idea or axiomatic statement as its starting point, a key idea distilled from the heart of Christian thought about the nature of God.

The concept of an organising idea has been described by Keith Ward (1982:110) as follows:

The highest use of philosophical reason lies in the conceiving and application of a new organizing idea, or a new interpretation of an existing idea, which enables one to build up a new, more comprehensive scheme for understanding the world. That is a function of imaginative creative reason. It is certainly not deductive, and it is not inductive either. It is a presuppositional activity, which picks out and organizes the primary data in a particular and imaginative way; it is like constructing a pattern for the world to fit into, from the creative extension of a number of clues. These clues are discerned by creative reason, contemplating the world synoptically, and evaluating its most significant features and fitting them into an overall pattern.

This description applies directly to our search for an integrating meta-narrative of the created order. A good example of such synoptic activity is the hypothetico-deductive scheme of George Ellis (1993:102-129), in which he extends the scientific world-picture of cosmology into an ethics based Cosmology. It is an attempt, he says, to build a new, more comprehensive scheme for understanding the world.

Ellis (1993:118) adopts a realist stance vis-à-vis not only the physical universe but also the other realms listed in endnote 8, especially that of moral values. The latter is a vitally important dimension of human personhood in which kenosis, the great quality of self-emptying and self-giving for the sake of others, stands as a widely accepted good. He bases his scheme on the simple, axiomatic statement that

God so creates and sustains the universe as to make possible high-level loving and sacrificial action by freely acting, self-conscious individuals.

Now, it turns out that the universe is finely tuned for the emergence of life – if any of its physical constants and starting conditions had been slightly different it would probably not be life supporting. However, as Ellis points out, if the divine purpose is to give rise to the high-level self-giving activity mentioned in his axiomatic statement, two further conditions are required: the hiddenness of God, allowing the freedom of response necessary for genuine moral choice, and a minimum of divine action in the world – no more than the giving of visions of the good to encourage moral behaviour. If any higher degree of divine action is postulated, it immediately raises the theodicy question – why it is that the Creator, if all powerful and perfectly loving, allows such horrendous evil and suffering in the world. And it is here, we may add, that science-and-theology can make a contribution, showing that since our world is tightly knit in structure and process, its openness to the free will of freely acting individuals inevitably carries with it an openness to human evil and, indeed, to natural disorders.

A new-style natural theology

We shall consider how Ellis's foundational idea may suggest a starting point for a theological grand narrative. But first we discuss the nature of the new NNT enterprise with its theological approach to the broad realm of intellectual inquiry.

Natural theology, as traditionally understood over most of the past millennium, was aimed at finding convincing deductive arguments for the existence of God on grounds external to revelation. In due course, however, these were shown by Kant and Hume to be philosophically questionable and the advent of Darwin's theory of evolution severely weakened the argument based on the appearance of design in nature's life forms. Further pressure came from the authoritative, initially uncompromising view of Karl Barth (as he stood against the Hitler aligned 'German Church') that natural theology is not compatible with a theology based on revelation.

Nevertheless a new natural theology has emerged from the science-and-theology discourse of the past four decades. Polkinghorne (1991:51) refers to the

enterprise as a revived and revised natural theology, remarking that its aim is no longer the classic goal of proving the existence of God. Rather, it seeks to exhibit theism as providing a coherent and deeply intellectually satisfying understanding of the total way things are. Later he comments on theology's important task of reflecting on human knowledge as a whole (2000: 20-22) including, we may add, the knowledge of human personhood in terms of the combined insights of science, religion, the arts and ethics, discussed above. He explains that the initial task of NNT, which he also refers to as theological metaphysics, is

to listen to what these primary disciplines have to say about their individual fields of study. [Its] aim is the integration of these partial perspectives, afforded by the first-order disciplines, into a single consistent and coherent account of reality ... Any scheme of this all-embracing kind has to be based on its chosen and defining explanatory principle, the justification for which must lie in the intelligibility of the resulting account of reality.

For Polkinghorne the defining principle is that creation is unfolding in accordance with the will and purpose of its Creator whose agency and very being are deeply characterised by self-giving.

Alister McGrath (2008:3, 19) describes the NNT enterprise as one of discernment, of seeing the world in a certain way, of viewing it through the particular set of spectacles provided by Christian theology as a whole. It is to be understood to include the totality of human engagement with the world, embracing the quest for truth, goodness and beauty.

Keith Ward (2003:602-605) sees natural theology as a wide-ranging theistic engagement with the world, which he does not link specifically to Christian tradition. He describes it as

the attempt to show how science, history, morality, and the arts are so related that a total integrating vision of the place of humanity in the universe may be formulated ... This will be more of an imaginative art than an inferential or deductive science.

Such an interdisciplinary exercise, as a form of philosophical inquiry, inevitably raises questions about its identity vis-à-vis both science and religion. Its relationship with each has often been uneasy. So, too, has been its relationship with philosophy. It deals with metaphysical questions and makes use of philosophical language and concepts, but does so within a theological framework and thus stands in contrast to the more empirical, naturalistic perspective of much Western philosophy. And for the theologian it is the metaphysical aspect that may seem to intrude into the narrative basis of the Christian faith. Indeed, many contemporary theologians treat the prospect of a metaphysical dimension to theological thought with considerable reserve, or even suspicion.

However, natural theology is still in the process of re-establishing itself. We may note that for Dietrich Bonhoeffer the concern to express the gospel in the language and ideas of the modern world meant "being driven right back to the beginnings of our understanding" (Bethge 1971:299). In similar vein McGrath speaks of the re-building of natural theology as a matter of "beginning all over again", the title of Howard Root's compelling call (1962:3-19) for a revived natural theology.

The task, then, is to produce a meta-narrative that does justice to the remarkable world-picture of the sciences. As Christopher Mooney (1991:319) puts it:

the universe that science studies is not a mere sequence but a story, a struggle upwards through matter, life, thought, history, and culture. Only a narrative can really capture what is going on. And it is precisely this need

of humans for meaningful narrative that allows theology to complement the causality of science.

Such an account will need to link Christian belief about the creation not only to the natural sciences and human sciences but also to the humanities – not only to the realm of logic and reason but also to the realm of aesthetics and the imagination. Indeed, NNT may be conceived as a twofold bridging activity – internally providing a framework for theology’s reflections on the religious, scientific, aesthetic and moral dimensions of human thought and activity, and externally linking these reflections to the general discourse of academy and society.

Jürgen Moltmann (1985:58-59) refers to these twin NNT aspects as an internal hermeneutic function of intellectually underpinning the Christian faith, and an external educative function of relating key theological ideas to more general discourse. But he points to a third NNT role: the eschatological function of anticipating “the knowledge of God in glory” – in other words, providing “metaphorical knowledge of this world as parable of the world to come.” The eschatological dimension is a fundamental feature of trinitarian theology, even if discounted by those who hold to a strictly philosophy based theism. It leads naturally to the speculative but profoundly explanatory idea in NNT that this is a world in the making, constituting the raw material for a new creation yet to be realised.

Table 2 below is an attempt to represent the bridging and integrating role of NNT. Whereas systematic theology strives for the internal coherence of theology, NNT aims to extend that coherence externally between theology and the intellectual world at large. The arrows give some idea of the creative interplay that constantly occurs.

Such an overarching NNT needs to start from some presupposition or organising idea about the nature of God. The point of departure may be the experientially based, richly detailed theism of one of the monotheistic religions or a more restricted and abstract theism characteristic of philosophy. Although the philosophical option is often assumed or preferred in science-and-theology, there seems far more explanatory power in an expanded tradition such as Christianity, especially in dealing with profound questions about horrendous suffering and ultimate meaning. And with both Christian tradition and Ellis’s key idea in mind we may consider the following statement as a possible starting point for a new-style natural theology:

God creates, sustains and perfects the universe so as to produce freely acting, self-conscious individuals who in responsive love may co-create and eternally enjoy the good/beautiful/fitting (το καλον).

In any case, a richly broadened meaning of beauty (το καλον) seems suitable to be a key idea in any theory of the nature and purposes of the Creator. Indeed, we may reasonably assume that το καλον is what the entire cosmic drama is about, that is, the creating and sharing of beauty throughout its wide variety of expressions. (Barrett 2005:503).

Table 2. A lay out of Western thought showing two contrasting types of second- and third-order engagement with the four main first-order activities of human society. The two outermost boxes correspond to the extremes of a range of integrative approaches that includes theistic naturalism and process thought. This is drawn from discussion with Niels Henrik Gregersen, John Polkinghorne and Keith Ward.

In conclusion, the emerging NNT has the creative task of embracing coherently all four areas of reflective theological analysis, not just the concerns of science-and-theology. The interplay between theology and science over the past four decades has been increasingly vigorous and remains important. But drawing in the other three areas of engagement, concerning religion, the arts and ethics, would make for an epistemologically well-grounded natural theology – a theological worldview to set against the varieties of fundamentalist thought (secular and religious) and, indeed, to leaven the range of theological discussion with the world at large.

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Endnotes

- 1 See Philip Hefner's editorial on 'religion-and-science' in the March 2008 issue of *Zygon: Journal of religion and science* (Chicago: The Zygon Center for Religion and Science).
- 2 Stephen Mithen (2003:148) writes: "The term cognitive fluidity refers to the capacity of the modern human mind to combine different ways of thinking with stores of knowledge to arrive at original thoughts, which are often highly creative and rely on metaphor and analogy. As such, cognitive fluidity is a key element of the human imagination."
- 3 Imagination features strongly in scientist-philosopher Michael Polanyi's understanding of the process of scientific discovery, which is summarised thus by Joan Crewdson (1994:58): "The dynamism in scientific discovery is due in part to the deliberate effort or thrust of the imagination searching for clues, in part to the spontaneous activity of intuition which integrates what imagination has hit upon, and in part to the inexhaustible nature of the hidden reality. Polanyi's analysis shows imagination serving the questing mind much as the blind man's stick probes the environment, searching for new coherences and guided by intuition towards a possible solution."
- 4 A topic treated by David Fergusson in his April 2008 Gifford Lectures.
- 5 These ideas were expressed on a website and confirmed by Wolpert in a private communication.
- 6 As Richard Harries (1993:17) puts it trenchantly, "If I did not believe that God is the source and standard of all that I experience as beautiful, that he/she is beauty as much as truth and goodness, I would not be a religious believer at all." He goes on to write of beauty as "beckoning us to itself and pointing beyond itself to that which seems tantalisingly unattainable. It draws us to itself and through itself. ... If God is the giver of all good gifts and contains within himself all possible perfections, then he must be beauty as much as he is goodness and truth" (Harries 1993:42, 48).
- 7 For example, this was claimed by Ray Kurzweil in his address to the February 2008 meeting of the American Association for the Advancement of Science (described briefly in *The Mercury*, Durban, 23 October 2008).
- 8 Polkinghorne argues that the conceptual move from unpredictability to indeterminacy that took place in the case of the quantum realm can also be made in the case of macroscopic systems – for the same reason of 'naturalness of explanation' and, indeed, for the explanatory power thus obtained about the way mind may conceivably act on matter. Then the admittedly deterministic mathematical equations applicable to such systems are to be regarded as no more than close approximations to physical reality. In other words, because the equations only apply exactly if a system is perfectly isolated, we may take nature's systems, un-isolatable as they are, to possess a subtle ontological flexibility that the equations do not quite capture.
- 9 See George Ellis's chapter "Natures of existence (temporal and eternal)" in *The far future universe* (2002), in which he suggests and discusses the following set of 'levels of existence': (i) the physical world of energy and matter, (ii) the contents of human consciousness, (iii) the set of possible physical and biological forms (our world being a subset of these), (iv) a world of abstract realities such as mathematical forms, physical laws, powerful symbols, etc, (v) the set of values, meanings and purposes underlying the created order, and (vi) the fundamental meta-level of the being of God. He claims that levels (ii) to (vi) are real in that they all have effects on (i). Works of art, while based on (i) and (ii), are strongly associated with (v).
- 10 Here we shall bear in mind the common postmodern aversion to meta-narrative, noting especially the concern of Ronald Michener (in *Engaging deconstructive theology*

[2008]) to present the gospel as a 'non-totalising' meta-narrative, based on what he calls a soft foundationalism. As his reviewer Lawrence Osborn explains (in *ESSSAT-News* 18.3, October 2008), Michener looks for beliefs that are provisional, which cohere in a belief mosaic that is open to continual testing, reinterpretation and re-contextualisation, and which are based eschatologically rather than foundationally.