

Biology and Theology in Conversation: Reflections on Ecological Theology

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Science and Theology in Dialogue

The potential for theology to act as a partner in dialogue with the natural sciences is itself a subject for dispute. Those who argue that dialogue is not possible propose that theology is concerned with questions which are outside the realm of science. Such questions are answered through a mystical approach to God that defies the very presuppositions that are the basis of scientific research. The recent tendency amongst theologians to portray early scientists as the arch-villains, rather than the priests of creation is noteworthy in this regard.¹ At the opposite end of the spectrum there is the attitude which treats theology as another science. This is not so much a rehabilitation of the idea of theology as 'queen of the sciences', but a redefinition of theology taking into account scientific methods of research. The latter form the basis of an hermeneutical approach to scripture which takes account of recent research in historical criticism.² A third and perhaps mediating approach, looks at the history of the philosophy of science and insists that these early scientists considered that their belief in nature as having a supernatural element did not hinder the advancement of science.³ The call now is for a *reenchantment* of science so that it recovers a more holistic approach characteristic of these early researchers. The clash between the first and third alternatives is that in the first case the scientists are blamed for the current ecological crisis, while in the latter they are heralded as angels of light from the past.

A difficulty with many of these discussions is that those scientists deemed worthy of comment have been the physicists and mathematicians. With the exception of Darwin, the biologists have not been given an adequate hearing in the debate between science and theology. The ecological crisis opens up new areas for fruitful debate between theology and the sciences more closely concerned with the environment. The apparent success of Darwin's hypothesis in explaining the biological origin of species and their adaptation to the environment may have led to the retreat of theology into the realms of early cosmology and physics or that of human history. A dialogue

between theology and biology was not attempted as it was considered irrelevant to theology.

In the last half century the development of science, including biology, has carried on largely detached from the humanities, including theology. More recently, modern physics has captured the public imagination by its portrayal of the new physics in mystical terms. An important example of this is to be found in the work of F. Capra. We have come full circle with the portrayal of science as mystical experience.⁴ The question is now: What kind of mystical experience is suggested by this new physics? A recognition of a religious dimension to science is very different from actual dialogue between science and Christian theology.

The combination of the nuclear potential of science and the ecological crisis wrought by the combined effects of the development of industrialization, growth and population explosion has forced theologians and scientists to tackle ethical questions arising out of these problems. Theology can no longer afford the luxury of conducting its research in a way that is unrelated to the seemingly more 'secular' context of nature. One reaction of theology, which we do not intend to address here, is the retreat into creationism. This is a literal interpretation of Genesis and a rejection of Darwin's theory of evolution. This could be presented as another way of rejecting the difficulty of dialogue by pretending theology can subsume the place of science.

The Social Practice of Science.

The theoretical basis of the scientific method is usually portrayed as one of detached observation and experiment. This is reinforced by the language used, the way journals are written, and the multiple specializations within science which encourage a greater distancing between the concrete object under study and the scientist. However, in practice there is far more personal involvement than might have been thought to exist on the surface. The pioneering ideas of Polanyi, a chemist turned philosopher, show the importance of practical experience as a way of understanding the way science works.⁵ Polanyi argued for the idea of personal knowledge, proposing that the practice of science is not as detached as it appears, since it involves a faith commitment. There is a difference between the public image of scientists and the actual practice of science which is the work of a human community.

A related issue is the experience of experimental science. This field includes different scientific disciplines which rely on empirical data for

their investigations. In biology, at least, the division between so-called empirical inductive science, which relies on pure observation, and deductive science, that begins with a theory and then attempts to refute that theory is not as straightforward as philosophers of science would have us believe.⁶ More to the point, biological science is almost always a team effort. Even those articles written by single authors usually rely on the back up of technicians. In this sense it can be a much more human exercise than most research in the humanities, which is still dominated by the model of individual research done in isolation. Theologians who portray scientists as coldly detached observers forget this very human element in their research.

Both biological and theological science have their 'charismatic' leaders who may influence an area of research and make this particular study fashionable. The policy on the funding of research is dominated by assessments as to whether individual researchers are successful. Successful applicants are judged by their publications and whether they have access to help in the form of personnel and equipment. The formalised and objective style of science hides the very real human struggles for authority. The public face of science encourages us to trust science and leads to a faith in science known as 'scientism'.

This attitude of respect for specialists in all fields has encouraged ordinary people to leave theology to the experts, even though the practice of theology is more explicitly one where understanding comes when the subject is immersed in the challenges of everyday living. The problem of science taking theology seriously is that it might seem to be much more based on opinion rather than having any 'objective' foundation. Modern philosophers have, meanwhile, largely rejected the idea of the existence of any self-evident 'foundations'.

Language Games in Theology and Science.

Theological and scientific language games can be other ways of excluding others.⁷ While initially such labelling may not arise with this in mind and could perhaps be seen as a series of summary statements, by the end of the development of a research science the jargon may make the subject incomprehensible to others outside this interest. Only relatively few are concerned enough with public interest to decode the jargon, and even they may do so with their own personal agenda intact.. Karl Rahner believed that the fragmentation of science is such that it becomes quite impossible to achieve a comprehensive view of reality. He calls this human awareness of such an impossible task the "gnoseological concupiscence".⁸ The difference between theology and the sciences lies in the former's focus on the transcendent

aspect of humanity.⁹ Rahner suggests that the role of theology is to point science back to the underlying unity of all things. However, we could argue that this role is also achieved by the science of ecology. Ecology reminds us that everything is connected to everything else. Rahner believes that each science has a tendency to take over the other sciences. Theologians do this as well: how often is a supposed synthesis between two areas a look to the right and left of one's own position?

Hans Küng has expressed fears that Catholic theology has isolated itself from developments in science and has become trapped in a medieval scholastic view of the world.¹⁰ The separation has been mutual. Science has rejected a place for theology and has taken on its own world picture from within its own presuppositions. In the work of the biologist Jacques Monod, for example, the concept of chance dominates so much that the world becomes meaningless. This is also the view taken by the philosopher Richard Rorty, who believes that progress in culture is through uneasy and haphazard shifts in our use of language.¹¹ It is ironic that for Richard Rorty, whose philosophy has emerged in a scientific climate, the future direction of culture is most easily discerned in the writings of poets and novelists, rather than scientists.

The Historical Basis for Theology and Science.

In biological science the source materials are drawn from both the previous experiments of earlier work, and future ones. As a research science, historical material more than ten years old becomes the antiquated reflections of previous workers. Scientists have to be prepared to let their work become part of a body of knowledge in a way that tends to forget their individual contribution. Their memory may become a teaching aid, perhaps in order to show the present advancement of the subject. It may not be surprising that biological science would find it hard to take a subject seriously with respect to influencing the direction of its research if that subject focused primarily on history.

The relationship between theology and history is more complicated in that it relies on a combination of sources; namely a historical book, the Bible, and the interpretations of this book through tradition, philosophy or reason. The resulting problems are those of identification with a seemingly alien culture of past generations. We find, for example, some feminists involved in a rewriting of history in a way that hopes to include the missing agenda of the historical record. This re-evaluation and re-interpretation is foreign to most biological scientists.

Today both theology and science are part of a common cultural context or present history. The gradual disillusionment with science as that which can give us a reason for hope has given way to a focus on practical questions such as that raised by economics. In other words in public media we do not find a justification on the basis of science, but on the basis of efficiency and market forces.

Faith Commitment.

Is there a place for faith in the midst of a supposed rational and market view of science and theology? I would argue that it is an illusion to hold that the market economy will be sufficient to shape policy decisions. Such a claim will leave a lacuna which will open us up to greater awareness of religious perspectives. If the public aspect of theology is presented in a way which ignores the human potential for faith, alternative theologies are bound to emerge. Some of this might be a good thing, but there could be other forms of faith which appeal simply to the gap in imagination. John Milbank is sharply critical of all forms of 'green' theology, believing that this is part of a continual displacement towards nature which reflects the 'modernist' trend towards a new basis for objectivity in nature in the wake of the collapse of the medieval consensus.¹² He seems to have identified a weak strand in much of this work, namely a faith commitment to nature representing a pre-Christian ideal. However, a simple return to medieval cosmology is not really a viable option either. We cannot circumvent the cultural and social changes since the Enlightenment. The new green theologies need re-rooting in Christian tradition rather than in their pre-Christian myths. The green approach to science is a 'subversive' science as it assumes the whole is greater than the parts. It is possible, then, to find strands of both continuity and discontinuity between the 'modernism' of early science and its 'postmodern' offspring.

Understanding God

Jürgen Moltmann insists that the way we think about God shapes patterns in our relationships with others and with nature.¹³ A traditional idea of God is that he is apathetic, that is he could not suffer, and that he is male, as Father. This view tended to invite the idea that God is an all-powerful tyrant who is remote from his creation. It is *not* the case that there are well developed theologies which describe God as Monarch in literalistic terms, rather the tendency is to stress the power of God, rather than his love. Moltmann is sensitive to this trend in the popular conception of God. An understanding of God which moves on from this is one which stresses the relationships in the Trinity as the

most significant aspect of God's being. Here God is God in relation, the Son and the Spirit are equal partners with the Father. A further, more controversial stage, is to envisage the Father in maternal terms as one who gives birth to the world. The world is in God, in pantheistic relation, while he still begets the Son. His motherly and fatherly roles are complemented by the Spirit, who is feminine and immanent in creation. The Son is in solidarity with the suffering and transfiguration of creation through the dialectic of cross and resurrection.

Understanding Ourselves in Relationship With Nature.

We find, according to Moltmann, a parallel development of anthropology alongside our view of God. If we think of God in categories of power it is easy to see ourselves as having the right to have dominion and rule over nature. Our perception of our task to master a threatening and wild nature was the impetus behind much of early science. If we move to a more cooperative understanding of the Trinity, our role becomes stewardship and responsibility. The third stage is one where the stress is on seeing ourselves as part of nature, we are in holistic relation to the rest of humanity and all of creation. In the final stage, which is linked with pantheism, we become indistinguishable from nature; here we arrive at biocentrism.

In environmental ethics our attitude to nature has a direct bearing on practical decisions. There are three broad ways of perceiving 'nature':

(a) In the first category we find nature treated as an object to be manipulated and used for human benefit. Here its value is instrumental and purely economic: nature is a resource for human benefit.

(b) Now nature is given some value in relation to ourselves, which is known as inherent value. This differs from the first category in that the aesthetic and other benefits of nature become valuable in a way which makes putting a price tag on different conservational programmes seem rather crude. Nature is to be loved and cared for by humans who act in responsible ways.

(c) The third stage, which is more 'biocentric', encourages a view of nature which gives it intrinsic value. This varies enormously in definition, here we mean value for its own sake quite apart from human interests.

(d) The final category, which encourages nature to have equal value to us, would lead logically to equal immorality being ascribed to killing or wounding any 'life', including the smallpox virus, which can only be biologically alive inside humans.

Towards an Ecological Theology and Ethic

How does all this affect science and theology? The actual practice of science is logically possible in (a) to (c). Process theology was one of the early theological movements which was aware of the significance of the ecological crisis for theology.¹⁴ The justification of science now is that as evolved beings we are part of the process of the emergent Creator. Hence, pantheistic tendencies are heavily influenced by Darwinian ideas of evolutionary process. This tends to encourage a view which shows the common origin of all creatures, but in a way which still puts humankind at the culmination of this process. As such we still have a superior position: the world as a whole seems to yearn for greater enrichment of experience through humans and so it is less than fully biocentric.

The claim of process theology is, ironically, mixed in with an anti-anthropological stance. In other words, while the idea of the reverence for life, which J. Cobb accepts as the most fruitful way to think of creation, should lead to the absence of human domination through science, in fact it is often the way that scientists find is an acceptable concept of God, as it finds God expressed through subjective experience which is at its most advanced form in human experience. This gets rid of the troubling notion of God as other: the world is for human enrichment.¹⁵ Once the idea of God as other goes we start down the slippery slope of natural fatalism: resignation in the face of death and redundancy.¹⁶ More important, perhaps, is that the consequence of a failure to perceive God as other leads to the loss of the insight of the earth as gift.¹⁷ If creation is no longer a gift of God its value is subject to the vagaries of human opinion. Who is to decide which actions will lead to maximum enrichment? The strength of the traditional approach is that the real basis for the value of nature comes from its value in relationship to God. Moltmann reaches the same conclusion, even though in places he engages in dialogue with process thought.

The *Gaia* hypothesis of Lovelock is a strong challenge to the reductionist tendency in science. It envisages the whole geosphere acting like a giant organism¹⁸ Many scientists find this hard to accept because it seems to draw on ancient cosmologies of the earth as a huge mystical body. While the more popular ideas of *Gaia* tend to portray

this model in terms of the homeostatic regulation characteristic of the earth, it would be more accurate to view this process as rheostatic, that is bringing conditions back to preset norms¹⁹ The value of Lovelock's idea lies in its encouragement to think and act globally. The difficulties are its basic anti-conservation and anti-anthropological stance. As long as *Gaia* survives, nothing else is considered important, humans become a cancer as far as the planet is concerned. While the science of Lovelock's ideas are refutable, *Gaia* is an important myth to be reckoned with theologically. But some other wisdom is needed once we face the practical ethical ecological decisions, for example choosing between some species rather than others, or deciding who is really responsible when the third world countries are forced to import polluting industries.

While Moltmann may be right in identifying religious commitments as those which have a profound effect on our attitudes to nature, his categorization does not always show itself in history. For example, the love of animals was around in the early modern era long before our view of God began to change. A green theology would attempt to be a theology which is true to itself as theology: concerned with questions about God, but at the same time humble about the potential impact this might have on humanity or the globe at large. It is open to the world, including science, but would challenge the practice of science where it seems to weaken the dignity of other humans or creation. A 'biocentric' view is inadequate when it comes to hard practical choices of existence. However, a holistic view, which values ecological systems, brings questions about ecological stability onto the agenda. The animal rights activists fail when it comes to a sense of value for communities.

A green theology would also welcome the example of science as that which is undertaken in collaboration with others. It is not just a matter of looking at problem texts in Genesis, but of opening up the dialogue between theology and other disciplines. Again, the advancement of science has often continued in this way; periods of specialisation need to be followed by a period of cooperation. Habermas has given us a philosophical basis for this approach, while Moltmann has given us a theological foundation through his understanding of the social Trinity. If the concept of stewardship has failed, since it still allows the idea of the instrumental value of nature to be retained, a simple resacralisation of nature will fail because it denies human responsibility. A combination of respect for nature with holiness is the ideal portrayed by the early Church, especially the Celtic saints. A sense of the sacred on its own leads to inaction and a failure to

confront the issues of human injustice which are bound up with questions about the environment.²⁰

- 1 See, for example, P. Sherrard, *Human Image: World Image* (Golgonooza, 1992).
- 2 For an example of the approach which interprets theology in terms of science, see T.F. Torrance, *Theological Science* (Oxford University Press 1969). For a thorough discussion of modern philosophical approaches and their influence on biblical studies, see A. Thistleton, *The Two Horizons* (Patemoster, 1980).
- 3 See, for example, D. Griffin, ed., *The Reenchantment of Science* (State University of New York Press, 1988).
- 4 F. Capra, *The Tao of Physics* (Wildwood House 1975); F. Capra, *The Turning Point* (Wildwood House, 1982). For a background discussion see I. Barbour, *Issues in Science and Religion* (SCM, 1966).
- 5 M. Polanyi, *Personal Knowledge* (Routledge and Kegan Paul, 1958)
- 6 K. Popper, *The Logic of Scientific Discovery* (Hutchinson, 1958).
- 7 L. Wittgenstein, *Philosophical Investigations* (Blackwell, 1953).
- 8 K. Rahner, *Theological Investigations*, Volume 13 (Darton, Longman and Todd, 1975), p. 95.
- 9 *Ibid.*, p.96.
- 10 H. Küng, *Does God Exist?* (Collins, 1980), p. 115.
- 11 R. Rorty, *Contingency, Irony and Solidarity* (Cambridge University Press, 1989). Related to this idea is the rejection of all forms of 'foundational' knowledge. The shift in philosophy has been away from epistemology to language and subjectivity. Habermas offers instead a model of communicative action and dialogue to replace the models of subjectivity. It seems to me to be preferable to Rorty's deconstructive approach. For an excellent discussion of these and other related issues, see R.J. Bernstein, *The New Constellation* (Polity, 1991), pp. 15–30; 199–292.
- 12 J. Milbank, 'Out of the Greenhouse', *New Blackfriars*, January 1993, pp. 4–14. For a discussion of the terms 'modern' and 'postmodern' see, R.J. Bernstein, *op. cit.*, pp. 1–13.
- 13 J. Moltmann, *God in Creation* (SCM 1985) . For a critique of Moltmann's theology see, C. Deane-Drummond, 'A Critique of Jürgen Moltmann's Green Theology', *New Blackfriars*, November 1992, pp. 554–565.
- 14 C. Birch, W. Eakin and J.B. McDaniel, *Liberating Life* (Orbis, 1990).
- 15 J. Cobb, *Is It Too Late* (Bruce, 1972).
- 16 For a further critique see J. Milbank, 'Out of the Greenhouse', *op. cit.* Milbank stresses the danger of 'pure immanentism' that he perceives in process theology. We are commenting here more on the inconsistency of this aspect of process thought and its so-called 'anti-anthropocentrism' with the elevation of subjective experience, which reaches its culmination in human experience.
- 17 P. Willey and E. Willey, 'The Earth as Gift', *New Blackfriars*, February 1993, pp. 60–73.
- 18 J. Lovelock, *The Ages of Gaia* (Oxford University Press, 1988).
- 19 C. Deane-Drummond, 'God and Gaia: Myth or Reality?', *Theology*, July/August 1992, pp. 277–285.
- 20 C. Deane-Drummond, 'Recalling the Dream: Celtic Spirituality and Ecological Consciousness', *Theology in Green*, July 1993 pp. 32–38.