

RECONSTRUCTING AN ECOLOGICAL COSMOLOGY: A SOUTH AFRICAN CONTRIBUTION

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Introduction

One of the classic tasks of religious cosmologies² is to provide us with a story within which we can live.³ Cosmologies provide us with a story of the origin and destiny⁴ of the universe and of the place of humanity within the cosmos. They answer the questions asked by children and adults alike: *Who am I? Where do I come from? What am I doing here? What will happen to me when I die?* Storytellers of all cultures seem to refuse to stop short of telling the cosmic story itself, however pretentious that may seem (Rasmussen 1994a:176).

The interest in origins may be partly speculative and explanatory but the main concern of such reflections is to understand who we are in a framework of larger significance. Cosmologies locate human life within a cosmic order across which the moral fabric of society is often woven (Barbour 1989:128).⁵ Likewise, creation stories are recalled and celebrated in worship and ritual because they tell us who we are and how we can live in a meaningful world (Barbour 1989:146). There seems, therefore, to be an inextricable link between cosmologies and a system of moral values (Rasmussen 1994a:178).⁶ Or, in the words of Thomas Berry (1988:xi):

For peoples, generally, their story of the universe and the human role in the universe is their primary source of intelligibility and value. Only through this story of how the universe came to be in the beginning and how it came to be as it is, does a person come to appreciate the meaning of life or to derive the psychic energy needed to deal effectively with those crisis moments that occur in the life of the individual and in the

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2 I prefer to use the concept 'cosmology' rather than 'world-view' because the former clearly includes a notion of the origin and destiny of the cosmos. The concept 'world-view' is often used in a more limited and anthropocentric sense, that is, with reference to views on the *human* world (society). 'Religious cosmologies' (as distinct from *scientific* cosmologies) are usually based on religious narratives about the creation and destiny of the world (and of humanity) and sometimes develop these narratives more systematically. In this paper the legacy of the demarcation between religious and scientific cosmologies is discussed.

3 Lindbeck (1989:95f) argues that paradigmatic stories (e.g. creation stories) play a vital role in the construction of the habitable social and religious 'world' within which communities live and orientate themselves. These stories are not merely part of the culture of the community; the community lives within the 'world' portrayed and created by these paradigmatic stories. These stories also structure the *nomos* and *ethos* of such a community and provide a frame of reference that enables people to cope with the demands of life.

4 Tracy (1994:77) insists that: 'The questions of cosmology are not properly understood as *only* concerned with the origin and natural structure of the world. Those cosmological questions include the destiny of the world as well - including the destiny of human beings, indeed of history itself - as 'inextricably bound up' with the destiny of the cosmos. For a sustained eschatological approach to an ecological cosmology, see Moltmann (1985) and Haught (1993:101f).

5 There is no essential relationship between the order of nature (*cosmos*) and a particular (moral) order of society (*polis*). However, in most cultures these two aspects are merged into what Toulmin (1990:67) calls a single 'cosmopolis'.

6 For a South African contribution to cosmological reflection, also emphasising the link between cosmology and ethics, see Ellis (1993).

life of the society. Such a story is the basis of ritual initiation throughout the world. It communicates the most sacred of mysteries ... Our story not only interprets the past, it also guides and inspires our shaping the future.

Cosmological questions are nowadays also a specific concern within a scientific mode of inquiry.⁷ The first three sections of this paper will reflect on the legacy of the demarcation⁸ between religious and scientific cosmologies. The retreat from cosmology in Western Christian theology and its impact on soteriology, creation theology, science and technology will be discussed (sections 1 & 2). Within the South African context this retreat from cosmology left a cosmological vacuum which was filled by apartheid theology (essentially a neo-Calvinist cosmology) - with disastrous consequences (section 3). At the same time, traditional African cosmologies have been undermined by the processes of urbanisation, modernisation and industrialisation.

Section 4 reflects on the viability of reconstructing an ecological cosmology in Christian theology, section 5 explores the contours of the global concern for an ecological community and section 6 relates these to the South African context.

1. The retreat from cosmology in Western Christian theology

In the theological cosmology of medieval Christianity,⁹ the Hebraic vision of creation was expressed within a neo-Platonic and a Ptolemaic world-view.¹⁰ The synthesis of scholastic theology integrated the notions of God, the world and humanity in a system of harmonious relationships. This cosmology provided some security and stability to the medieval *corpus Christianum*. Within this 'symbolic universe' the medieval social order received an ultimate theological justification, an absolute legitimacy and a universality of scope.¹¹ In this self-contained, static, highly structured and hierarchically ordered¹² cosmology, the whole world and its network of relationships could find ultimate meaning and security in a God who 'holds the whole world in his hands'.

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- 7 Whereas scientific cosmologies are far more exact in their descriptions of the origins and the history of the universe, religious cosmologies hold distinct advantages over scientific ones. The mythical language of religious cosmologies speaks about ultimates (on origins, destinies, meaning, values) without abstracting from concrete experiences. Science can venture close to these but cannot, *qua* science, leap towards answers to these ultimate questions (see Rasmussen 1994a:177). Science cannot by itself teach us exactly *why* we should be concerned about the resources of our planet and why we should treasure and preserve it (Haught 1993:12). Religious instead of scientific cosmologies seem to be far better equipped to answer the question why we should be moral at all.
- 8 Traditional world-views could indeed be understood at once as astronomical, technological or theological (see Toulmin 1982:22).
- 9 For a brief description of medieval theological cosmology, see Wilkinson 1991:129-132. For a fuller description, see the comprehensive work of Wildiers (1973).
- 10 Toulmin (1990:68) argues that explicit cosmologies did not play any central role in medieval Christian theology. Since Augustine, the focus has been on the human failure to maintain the *moral* order. The spiritual disciplines and the message of salvation addressed this problem. It was only during the time of the Renaissance that the recovery of classical texts reawakened the concern with cosmology. However, this paper argues that the moral order of medieval theology was built on the foundation of a Ptolemaic cosmology. When this cosmology was undermined the moral order and the theology of salvation was also undermined.
- 11 See Berger and Luckmann's (1967:112f) classic analysis of symbolic universes.
- 12 According to Wildiers (1973:136f), theologians in the Middle Ages had no doubt that God created a perfect order in the universe. God is a God of perfect order. Cosmos is therefore synonymous with order. We simply need to look at the 'book of nature' to discover this order. Sin may be regarded as the disturbance of this order and redemption and eschatology as the restoration of this order.

The story of the fragmentation of this theological cosmology is as complicated as the history of Europe since that time.¹³ Among the many factors contributing to this process, one may mention the following: the almost tangible sense of cosmic insecurity caused by the Black Death,¹⁴ the technological advances throughout the Middle Ages, the development of a Franciscan interest in observing the 'book of nature', the purely theoretical postulate of the unlimited character of the universe (1440) by Cusanus,¹⁵ the political and economic impact of the Reformation, the explorations and exploitations of new worlds by Columbus and others, the new astronomy of Copernicus,¹⁶ Galileo and Kepler,¹⁷ the new empirical mode of inquiry introduced by Bacon,¹⁸ the rationalism of Descartes and, eventually, the comprehensive mechanical view of the universe of Newton. The harmonious medieval synthesis of God, the world and humanity and the sense of security provided by this cosmology were gradually lost in this process.¹⁹

The famous *questions* raised by Luther (Where can I find a God of grace?), the Heidelberg Catechism²⁰ (What is your only comfort in life and in death?)²¹ and Descartes²²

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- 13 Oberman (1986:25) describes the late Middle Ages (before the dawn of the protestant reformation) also as 'the Age of Crisis' in every conceivable sphere. The synthesis provided by scholastic theology was already beginning to crumble (see Oberman 1986:25-32).
- 14 According to Berry (1988:125), two distinct responses to the plague emerged: one looked towards a religious redemption from this tragic world and the other towards greater control of the physical world to escape its pain. These two approaches still exemplify modern tendencies (towards a purely religious community or towards scientific knowledge, technological control and industrial power).
- 15 This postulate sowed the seed of the fragmentation of the medieval cosmology. If the universe itself could be conceived of as unlimited (and not limited, closed, and hierarchical), its centre is everywhere, its circumference nowhere and its relationship with an infinite God obscure (see Wildiers 1973:154-156).
- 16 The most revolutionary aspect of the theory of Copernicus was perhaps not his claim that the sun was at the centre of planetary motions but that this theory attempted to describe reality itself. This constituted a move away from the Platonic conception of cosmology as the contemplation of the mind to a cosmology based on the senses. This new mode of observation and the search for empirical evidence featured increasingly in the work of Kepler and Galileo (see Wilkinson 1991:148-149).
- 17 See the detailed discussion of Wildiers (1973:160f) on the impact which these three astronomers had on the fragmentation of the medieval cosmology. Wildiers (1973:189) notes the remarkable fact that an astronomical paradigm shift eventually led to a complete revolution in Western culture. Ruether (1992:33) adds: 'Not only did the heliocentric view shift the entire focus of reality from an earth-centred world to one where the earth was a minor planet circling around the sun, but it also destroyed a whole moral and spiritual system that had been built on this earth-centred view.'
- 18 See the brief assessment of Bacon by Swimme and Berry (1992:230): 'Francis Bacon (1561-1626) ... established the basic pragmatic orientation that envisaged the scientific venture as serving human welfare, giving to science its commission to besiege the natural world until nature would give up its secrets in the service of the human.'
- 19 See Oberman (1986:25-32) for details on this process.
- 20 See Khem's comments (1992:199) on the anthropocentrism of the Heidelberg Catechism: 'The Heidelberg Catechism has been praised for its pronounced personalizing of the meaning of the doctrines of the Christian faith. Beginning with the answer to the first question, the leitmotif of the catechism is that 'everything must fit his purpose for my salvation' ... Whatever 'pastoral' benefit may be provided by such teaching, an individualistic or, at best, tribal view of salvation and an anthropocentric view of the world are what it communicates.'
- 21 The historical context in which the Heidelberg Catechism (1563) was written was one of great political, military, ecclesial and religious turmoil (Exalto sa:9). It was the time of the Counter-Reformation, of protracted religious wars and of vehement theological controversies among Catholics, Lutherans, Calvinists and Anabaptists. The fragmentation of the *corpus Christianum* and the medieval theological cosmology understandably led to anxiety and insecurity. The questions raised by Luther and by the Heidelberg Catechism therefore did not merely reflect a need for a purely personal or quasi-existentialist sense of comfort.
- 22 See Toulmin (1990:56f) for an illuminating discussion of the trauma caused by the Thirty Years' War (1618-1648) as the background to Descartes's philosophy. Toulmin argues that the appeal of the 'quest for certainty' in Descartes's rationalism should be understood as a desperate and somewhat reactionary attempt to cope with the anxiety, trauma and chaos of the early seventeenth century. By 1648, the collapse of the old world order became

(Where can I find a point of departure which is beyond doubt?) reflect this new cosmological insecurity.²³ In their different forms these questions relate to the problem as to where humanity may find a place, an anchor in an infinite cosmos that could no longer be based on a divinely guaranteed order. These questions reflect the insecurity of a world within which the system of harmonious relationships between God, the world and humanity have become obscure.

In an infinite universe there would seem to be no fixed theological, moral or epistemological centre. Every position is a relative one (Moltmann 1985:142). Pascal was one of the first witnesses to express this feeling of being homeless in an endless universe: 'The eternal silence of these infinite spaces frightens me.'²⁴ Or, in the words of Toulmin (1982:221):

Once the earth was displaced so that it became one of the minor planets of the sun, instead of occupying the center of the cosmos, albeit its corrupted center, people lost their former sense of 'knowing where they were' in the overall scheme of things ...²⁵

The anthropocentrism of the *answers* provided by subsequent generations of theologians and philosophers (the *humanum* of humanism, the *cogito* of Descartes,²⁶ the 'heart' of Pascal, the *ratio* of the Enlightenment, the empirical evidence of empiricism, the transcendental categories of consciousness of Kant, the 'feeling of absolute dependence' of Schleiermacher, the quest for existential meaning in existential philosophy, etc) could, in principle, not provide solutions to a problem which was not merely anthropological but cosmological in scope.

This fragmentation of the medieval cosmology also led to a detachment of scientific cosmologies from theological cosmologies.²⁷ This was, of course, prompted by the responses of the Catholic church to the emerging theories of Copernicus and Galileo. The

evident. Descartes and Newton laid the foundations for a new cosmology based on mathematical certainty (Toulmin 1990:83).

- 23 It is unlikely that the cosmological fragmentation caused by the Copernican revolution had an impact as early as the sixteenth century. The Heidelberg Catechism followed just twenty years after the publication in 1543 of Copernicus' work, *De revolutionibus orbium coelestium* (published, interestingly enough, by Osiander, the reformer at Nuremberg). Scholder 1990:46, 52-53 concludes: '... the consequences of the Copernican shift were not in fact obvious even to experts during the sixteenth century'. However, it is perhaps equally valid to argue that 'Copernicus crowned an era hungry for reality, groping for answers, and seeking to initiate change' (Oberman 1986:201).
- 24 *Pensées* no 206. Pascal preferred not even to examine the opinion of Copernicus but rather to deal with the question whether the soul was mortal or immortal (*Pensées* no 218). See Moltmann (1985:141f); Wildiers (1973:195f).
- 25 See Toulmin (1982:219f, 1990:62f) for a discussion of John Donne's poem, *An anatomy of the world* (1611). This poem followed a year after the publication of Galileo's *Sidereus nuncius* (1610) and reflects the same cosmological uncertainty in a world in which 'all coherence is gone'. The 'new' astronomy was not only a new theory about the motion of the planets; it undermined the entire cosmopolis (Toulmin 1990:67). Also see Wildiers (1973:191) for a similar analysis of the poems of Shakespeare (1564-1616). The disorder in human society reflects the apparent cosmic disorder.
- 26 The dualism of Descartes, separating humanity from nature and mind from matter, led to a fragmentation of the single unified order of the Greek notion of cosmos. The world-view of Descartes and Newton therefore no longer represented a genuine *cosmos* (Toulmin 1982:224).
- 27 The new interest in astronomy was usually born from and motivated by theological concerns. One may even argue that the astronomers pointed the telescopes to the sky in search of traces of God. For Galileo, Kepler and Newton there was an intimate relation between theological and scientific understanding. Newton saw himself as a theologian as well as a scientist. He was describing the way in which the divine functions in the universe (Swimme & Berry 1992:227). However, the *results* of these investigations soon led to a tension between scientific and theological cosmologies.

church desperately tried to keep the legitimacy of the old cosmological myths intact. In 1633 this led to the infamous trial and condemnation of Galileo. The sciences hereafter gradually emancipated themselves from the medieval theological cosmology. Science and theology (until recently) increasingly drifted apart.

This process had a disastrous impact on Christian theology. Christian theology could no longer provide satisfactory answers to the problems energetically posed by new generations of philosophers, astronomers and scientists. In the emerging new world, it was simply impossible to fulfil the classic task of religious cosmologies: to provide a sense of the whole and of where we fit into it, a frame of reference with ultimate explanatory power, absolute legitimacy, moral cohesion and cosmic scope.²⁸ Theologians who were still clinging to discredited cosmological doctrines were fighting a losing battle. Those who were enthusiastically baptising new scientific theories theologially found themselves stranded whenever these theories subsequently became outdated.²⁹

Faced with this dilemma, Christian theology found an escape route in what Moltmann (1985:34) has called a 'theological retreat from cosmology into personal faith'. In an attempt to protect itself from the scientific questioning of the status of the biblical creation narratives, Christian theology tried to demarcate its own field of specialisation by detaching the doctrine of creation from cosmology.³⁰ Moltmann (1985:33) comments:

So all that remained was the reduction of the doctrine of creation to the personal faith which says that human beings have to put their trust in God the Creator, not in his creatures. In order to protect itself from scientific attack, the Protestant theology of modern times liked to explain faith in creation as an expression of the feeling of absolute dependence. That is to say, it was interpreted as an existential truth.

Moltmann (1985:36) continues:

After its retreat from cosmology, theology concentrated on personal faith. 'I believe that God created me ...' as Luther's Short Catechism says. Of course all belief in creation includes that personal conviction. But this personal confession of faith was now increasingly interpreted in an exclusive sense, although it was meant inclusively: for Luther goes on 'together with all creatures'.

As a result of the growing demarcation between science and theology, creation theology was gradually detached from (scientific) cosmologies. In this theological climate, creation theology itself has often been marginalised. In biblical theology, as a consequence of the influence of Gerard von Rad and others, the belief in a creator God has often been regarded

28 Durkheim argued that religions are not confined to forms of expression such as ritual, worship and doctrine. As comprehensive views on the world, religions inevitably also give rise to cosmological reflection (see Boff 1995:62).

29 The order of the classic cosmology (and the harmony and 'design' of the seventeenth-century world-view) was soon replaced by the more historic and uncertain notions of evolution and adaptation (Toulmin 1982:260).

30 Moltmann (1985:34-35) explains the impact of this line of demarcation between science and theology in the following way: 'Johannes Kepler, like Galileo after him, maintained the view that God's intention in the Bible was not to correct erroneous opinions about the world, or to save people the effort of investigation. His sole purpose was to reveal to human beings everything that was necessary for their salvation. This Reformation tendency to interpret the biblical traditions in the light of the human - and indeed personal - questions of salvation was subsequently felt to be liberating, and is occasionally still seen as such today. But this concentration on the salvation of the individual person also cut theology off from human ways of knowing and mastering the world. Theology's domain became the soul's assurance of salvation in the inner citadel of the heart. The earthly, bodily and cosmic dimensions of the salvation of the whole world were overlooked.'

as a mere extrapolation of the belief in the Saviour and Liberator.³¹ In systematic theology, the almost exclusive focus on the doctrine of redemption (or liberation)³² has simply not been paralleled by new explorations of the doctrine of creation (Tracy 1994:76). There has, in fact, been an 'eclipse of creation' in many twentieth-century systematic theologies. Also in popular piety the diminished role of faith in creation is evident (Landes 1984:140).

As a result of these developments, Christian theology has focused increasingly on the problem of human (personal or societal) salvation or liberation. Preoccupied with the 'inner agenda of guilt,' theologians became unable to respond to the 'outer agenda' of ecological despair (Santmire 1989:267). Nature was regarded as the 'stage' (Calvin) for salvation history only.³³ Human history alone has been seen as a sphere in which God can touch our reality, hence the natural world has more and more been considered irrelevant to theology (McFague 1991:22). At worst, redemption was portrayed as a future event whereby believers will be finally rescued from this world.³⁴ McDonagh (1986:62-3) comments on this escape route:

Religious thinkers withdrew their attention from wider cosmic, earthly, and even cultural concerns and began to concentrate almost exclusively on the uniqueness of the Christian story. Consequently the theology of creation was generally ignored and almost all theological inquiry was confined to the process of redemption and salvation, the personality of Jesus, the interior spiritual disciplines needed to guide the individual soul along the path of salvation, and the internal constitution and juridical status of the ecclesial community.³⁵

The retreat from cosmology and creation theology eventually led to an impasse in soteriology itself. With the fragmentation of the medieval cosmology, the relationship between God, the world and humanity became obscure. Christian theology responded by desperately trying to heal the broken relationship between humanity and an increasingly transcendent God. The questions raised by Luther, the Heidelberg Catechism and others could (in principle) not be answered adequately because the insecurity which they wished to address was not only personal or societal but indeed cosmic in scope.

The relationship between humanity and the cosmos therefore remained obscure. McFague (1993:34) comments:

31 Although the belief in God's salvation probably still has a noetic priority over a belief in God as creator, this noetic priority should not be allowed to become an ontological priority (see Durand 1982:84).

32 Liberation theologians (with some notable exceptions) have until recently also limited their concern to *human* well-being (see McFague 1991:122, Landes 1984:140).

33 McDonagh (1986:62-63) asks instead: '[Is] the twenty billion years of God's creative love simply ... a stage on which the drama of human salvation is worked out?'

34 The hope for a cosmic redemption has biblical roots (Is 11:6-9; 65:17, 25; Col 1:14-20; 1 Cor 15:28; Eph 1:10; Rm 8:19-22). In Western theology, expressions of this hope became relatively rare but it was kept alive in Eastern Orthodoxy. Mainline Christianity saw the world as going downhill towards destruction (Ruether 1992:237). The ecological consciousness of the last few decades has led to a re-emergence of this hope for the redemption of the world as opposed to the redemption of believers *from* the world (see Nash 1991:125-132).

35 McDonagh (1986:62-63) argues that the problem could be traced back to the roots of Western tradition in the theology of Augustine: 'Since the late Middle Ages and particularly since the Reformation, there has been an almost exclusive concentration in the Western theological tradition on a fall/redemption theology, much of which can be traced back to Augustine. This theological tradition has no adequate theology of creation. The twenty billion years of God's creative love is simply seen either as the stage on which the drama of human salvation is worked out, or as something radically sinful in itself and needing transformation.' For a quite different appraisal of Augustine's ecological legacy, see Santmire (1985:55-74).

We have lost the sense of belonging in our world and to the God who creates, nurtures, and redeems this world and all its creatures, and we have lost the sense that we are part of a living, changing, dynamic cosmos that has its being in and through God.

In this way, the retreat from cosmology has led to a major impoverishment and distortion of Christian understandings of salvation and liberation (Tracy 1994:76).³⁶

2. The ecological legacy of this retreat from cosmology

The theological retreat from cosmology affected not only Christian theology. The segregation between theological and scientific cosmologies eventually had an ambiguous impact on (the self-understanding of) science and technology as well.

Despite the theological retreat from cosmology, the tension between theological views and emerging scientific theories continued to simmer for several centuries. This tension again flared up with the publication of Darwin's *On the origin of species* (1859).³⁷ It was quite clear though that scientists could hardly take the theological objections seriously. The tension between theological views and scientific theories was eventually 'resolved' by the tacit agreement to demarcate for each form of inquiry separate and nonoverlapping spheres of authority. This separation of the spheres of science and religion followed the Kantian split between *reine Vernunft* and the *praktische Vernunft*, between facts and values, between that which can be empirically observed and scientifically verified and that which belongs to a realm beyond that: the ethical, the aesthetic and the spiritual (Ruether 1992:35). Theology and science therefore could coexist by tacitly agreeing not to communicate with each other.

The detachment of the sciences from theological cosmologies was a necessary requirement for the emancipation of scientific inquiry from ecclesial and theological tutelage. The emergence of scientific cosmologies following the astronomical research of Copernicus, Kepler and Galileo indeed constituted the birth of modern science. Without this detachment from theological cosmologies, the spectacular achievements of modern science and technology would not have been possible.

However, these achievements have now proved to be deeply ambiguous. There is no need to deny the liberating benefits that (at least a certain segment of) humanity has reaped from modern science and technology. The average human lifespan has been extended by a generation or more, many diseases have been brought under control, enormous wealth has been produced and distributed to millions, so that human life can extend beyond the mere struggle for survival. Unless they are ecologically sustainable, these yields may prove to be short-lived. There is no need (within the confines of this paper) to review the predicaments which the domination of the values of progress, development, production, competition and growth have produced towards the end of this century. 'We are', says Rasmussen (1991:358), 'violating the basic law of life itself: exchange and reciprocity, giving and receiving, living and dying and dying to live, in some relatively fair measure.'³⁸ And, as

36 The line of demarcation between theology and science also did not guarantee that Christian theology would be left untouched by emerging scientific theories: 'There can be little doubt that the events symbolized by the names Copernicus, Galileo, Newton and Darwin changed forever the landscape of theological thought' (Tracy 1994:74).

37 Ruether (1992:34) regards the theory of Darwin as the second major blow (besides the one dealt by Copernicus) to the received Christian cosmology.

38 See the comment by Swimme and Berry (1992:244): 'While it is true that the various members of the natural community nourish each other, and that the death of the one is the life of the other, this is not ultimately an enmity, it is an intimacy. The total balance of the process is preserved. If there is a taking there is a giving.'

Thomas Berry (Berry & Clarke 1991:45) insists: 'We have to live on the planet, on the planet's terms and not on our terms.'

Without sustained philosophical, religious and theological reflection on their basic assumptions and aims, science and technology seem to run into their own impasses. In fact, the former theological world-views have simply been replaced by secular world-views (e.g. mechanical, materialist, Newtonian, positivist, capitalist, industrialist, technocratic, or consumerist).³⁹ There is a clear need for science and technology to reflect on their own basic assumptions and aims. The environmental crisis is functioning as a global antenna indicating that the strict demarcation between science and religion is defective (Siegwalt 1975:225f).

This demarcation between science and theology has also been undermined by recent developments within science itself. Although mechanistic, materialist and positivist notions of science are still alive in the popular imagination, these notions have been challenged by the changing paradigm in the philosophy of science (the contributions of Popper, Kuhn, Hanson, Polanyi, Feyerabend) and by several results of scientific investigation itself: evolutionary theory, relativity, quantum mechanics, the principle of indeterminacy, quarks, DNA research, et cetera. Tracy (1994:74) insists that this shift in scientific self-understanding and '... the collapse of earlier mechanistic, materialist, and positivist models has freed science itself to a sense of the ultimate mystery of reality and to a chastened but real willingness to dialogue with any plausible philosophical and theological cosmological hypotheses'. The neat separation between religious and scientific cosmologies therefore seems to be clearly defunct.

Although there is nowadays a mutual (if sometimes uneasy) appreciation and dialogue between the sciences, philosophy and theology, this has not yet led to a new cosmology, a new story of the origins and destiny of the universe. In the words of Thomas Berry (1988:130), 'An integral story has not emerged, and no community can live without a unifying story'. Without such a unifying story, no set of common moral values has emerged to help us cope with emerging environmental disasters.

3. The legacy of the retreat from cosmology in South Africa

There is no need here to document the roots and bitter fruits of the social practice, political policy and theology of apartheid. The political policy of apartheid reinforced the divisions of class and race that had developed over centuries of colonial rule into a bitterly oppressive socio-economic practice. The theology of apartheid provided a moral legitimization for these practices and policies.

It is, however, interesting to note that the theology of apartheid had at its very roots a cosmology - one based on a particular brand of Kuyperianism and on the neo-Calvinist philosophies of Dooyeweerd and Stoker. The most prominent feature of this cosmology was

Without reciprocity the Earth could not survive'. The lack of reciprocity is also illustrated in the way in which the modern industrial age has disturbed the chemical balance of the planet's ecosystems.

39 Despite the (legitimate) postmodern protests against closed systems, some form of comprehensive world-view or frame of reference seems to be unavoidable. 'We are', argues Rasmussen (1994a:178), 'incorrigibly cosmic storytellers'. The postmodern critique against 'foundations', 'objectivism' (Bernstein), 'grand narratives' (Lyotard), 'large, overarching, communal vocabularies' (Rorty), et cetera, appropriately undermines any notion that an existing underlying, unifying principle can be excavated or *identified*. However, it is also possible to argue that social constructs such as 'horizons' (Gadamer), 'fiduciary frameworks' (Polanyi) 'symbolic universes' (Berger), 'language games' (Wittgenstein), 'epistemes' (Foucault) or 'world-construction' (see Kaufman) do not *identify* but *create* a certain unity within a particular context.

its version of the doctrine of the 'orders of creation'.⁴⁰ God ordained (in creation) several distinct spheres of life (e.g. marriage, family, labour, arts, law, science, religion, ethnicity and nations). To live according to the orders of creation is to live according to God's will and to obtain God's blessing, whereas to attempt to live outside these orders is to court judgement and ruin. The way things are is presumably the way things should remain.

Each of these spheres of life was said to be *sovereign within its own domain*.⁴¹ This was translated into support for the idea that the various races, peoples and nations (with a reference to Babel) also had to retain their own sovereignty and therefore should remain apart from one another (hence apart-heid/apart-ness).

Again, the details of this cosmology need not occupy us here. What is important, though, is to note that this theology could emerge because it filled the existing cosmological vacuum. This vacuum was precisely the result of the retreat from cosmology described above. The dominant theology among white Afrikaners was (before the advent of the theology of apartheid) a peculiar blend of the reformed theology of Kuyper and Bavinck, Scottish evangelicalism, and pietism (see Bosch 1984; Durand 1985; Kinghorn 1986:45f). However, a theology preoccupied with human (personal) salvation could not provide remedies to the urgent social, economic and political problems experienced in South Africa at that time. A theology was required that could provide a clear outline of the structure and basic aims of society. Lacking any articulated cosmology on which to establish such a social theology, a vacuum remained that was filled by the fatal experiment of apartheid and its theological legitimations. However much one may despise the answers provided by apartheid theologians, one should admire the pertinent questions which they raised (and the cosmological scope of these questions). These questions seem to be far more adequate and penetrating than the limited concern with (individual) human salvation of many other reformed theologians of that time. The mistake of apartheid theology was not that it attempted to build a cosmology but the specific way in which this cosmology was developed (Kinghorn 1990:97).

Ironically, while some were struggling to fill this cosmological vacuum, there were already forces at work that led to the increasing disintegration of the traditional world-views (and the social fabric) of African communities. As in most traditional societies, these world-views were essentially of a cosmological nature - telling stories of the origin of the universe and locating human societies within the cosmos. The plausibility of these cosmologies was gradually undermined by the impact of colonial rule and the processes of urbanisation, industrialisation, modernisation, Christianisation, et cetera.

The net result of these processes has been the disintegration of the fabric of society and its network of social relationships. Without the support of a broad cosmology, people are no longer sure where they fit into the world, how they should relate to other members of the family, clan and community, how they should understand their own identity, how they should contribute to maintaining this social fabric, and so forth. In the words of Sindima (1989:541): 'Corrupt a people's thought systems and you have destroyed their value system; you have ruined the 'world' or cosmology which informs their way of life.' The disintegration of these traditional cosmologies (together with the increasing problem of the scarcity of resources) is perhaps evident in the present high levels of crime, corruption, violence and a sense of rootlessness and moral bankruptcy in South Africa.

40 See Peters (1989:102f) for a similar analysis of this notion of the order of creation.

41 This notion of sovereignty within the own domain soon turned into one of being totalitarian within the own domain (Durand 1985).

Despite these processes, it is remarkable that the vision of many recent South African social theologies remains comprehensive (if not cosmological) in scope. This applies to the emerging theologies of African Indigenous Churches (AICs) and to theological reflections on the Reconstruction and Development Programme (RDP).

4. The ambiguous need for renewed cosmological reflection

McDonagh (1986:61) argues that the malaise of modernity is largely due to the loss of a meaningful sense of identity. Such a sense of identity is usually provided by comprehensive myths or stories accounting for the emergence of the world and explaining our place and role in the world. Without these comprehensive myths or stories people lose their sense of place. And if you no longer know where you fit in, everything becomes permissible. This loss of a sense of identity and place is not only unfortunate for humans, it has had devastating ecological consequences. We are, says Loren Eisy, the strange species which ...

... opened a vast hole in nature, sucked down the lightning, wrenched apart the atom, ripped open the seams of the earth, and drowned the ancient sounds of nature in a cacophony of wild and deadening noises that riddled the skies, shuddered the ground, and wilted the once proud grasses.

(From: *The immense journey*, quoted in Rasmussen 1991:357)

In South Africa this loss of identity has allowed the policies of colonialism, classism and racism to continue unbridled. And in the present dispensation it has led to the deterioration of the moral fabric of the South African society as a whole. The moral order of society seems to collapse whenever the sense of cosmic order falls into disarray (Wildiers 1973:188).

This concern for the loss of identity is echoed by Thomas Berry (1988:123):

It's all a question of story. We are in trouble just now because we do not have a good story. We are in between stories. The old story, the account of how the world came to be and how we fit into it, is no longer effective. We have not yet learned the new story. Our traditional story of the universe sustained us for a long period of time. It shaped our emotional attitudes, provided us with life purposes, and energized action. It consecrated suffering and integrated knowledge. We awoke in the morning and knew where we were. We could answer the questions of our children. We could identify crime, punish transgressors. Everything was taken care of because the story was there ...

These comments seem to indicate the need for a theological return to cosmological reflection. This need has often been expressed by those interested in theology-science debates. However, it is especially theologians with a predominantly ecological agenda who have led a more recent theological interest in cosmological reflection (cf the contributions of Berry, Boff, Haught, McFague, Moltmann, McDonagh, Rasmussen, Ruether and others).

The agenda of this group of theologians seems fairly clear: the concern with cosmology is related to the search for human identity. Who are we as human beings and where do we fit into the broader picture of the universe? But more dramatically: where are we now in the history of the earth? How should we ultimately understand the significance of the present ecological crisis in terms of the origins and destiny of the universe? This new quest for cosmological reflection is clearly born from a renewed awareness of the moral implications of a cosmic frame of reference.

Before we proceed to look at some of the features of this emerging ecological cosmology, it may be worthwhile to heed a few important warnings:

- (a) A renewed theological interest in cosmology should be approached with extreme care. Cosmological schemes all too easily degenerate into closed, totalitarian world-views. The human rights track record of theological cosmologies is indeed more than dubious.

Brueggemann (1978:39) argues that the biblical creation narratives served the purpose of royal propaganda in the reign of Solomon:

Viewed negatively, creation faith is royal propaganda, daring to claim that the king-temple-royal-city complex is the guarantor of both the social and the cosmic order ... creation faith speaks to a community that has lost interest in survival questions and that is prepared to think more broadly about large issues of proportion, symmetry, and cohesion.

Cosmologies can therefore easily degenerate into theological legitimations of oppressive social orders. Cosmological reflection often serves as an ultimate justification for and sanctioning of a stable (if often oppressive) social order. This was to some extent true of medieval Christianity, of twentieth-century fascist ideologies and, of course, of the neo-Calvinist cosmological reflections of apartheid theologians.⁴²

- (b) It is not surprising that there is a degree of suspicion towards the renewed interest in theology-science debates. After all, this is a somewhat sophisticated concern of a group of predominantly 'first-world' scholars. These debates often seem to outsiders to be somewhat esoteric and all too erudite. Is it not far more important to reflect on the very real social problems relating to poverty, oppression, and the misery of millions today? Tracy (1994:76) argues that the suspicion of liberation theologians towards the new interest in cosmology is entirely appropriate:

The suspicion that 'cosmological' interests in theology *can* function as a distraction from these historical responsibilities or even as ideology for intellectual elites ... seems, admittedly, in order. The importance of these suspicions should not be domesticated. Indeed, any pure models of 'progress' unable and unwilling to face the tragedy and suffering in human existence fully deserve Christian theological suspicion, indeed contempt.

A similar suspicion has often been expressed regarding 'first-world' environmental concerns. Is the protection of the environment really more important than the needs of the poor and the oppressed? Within the South African context someone once said: 'It sometimes appears as if it is easier to raise two million to save a rhinoceros than to save a human from a life of deprivation' (Cock & Koch 1991:46). Or, as an argument quoted by Leonardo Boff (1995:12) has it:

Ecology is a luxury of the rich. It is a product of the northern hemisphere. These people have despoiled nature in their own countries and have robbed the colonized peoples of the entire world, and after all that are now claiming a safe ambience and ecological reserve for the preservation of a species in the process of decline.

This argument is easily refuted (which Boff does as well). Ecological concerns are indeed global concerns. And caring for people without a healthy environment is clearly not a viable solution. However, it remains important to meet these suspicions whenever theologians engage in cosmological reflections.

⁴² The problem of the cosmological reflections of apartheid theologians is not so much related to the attempt to develop a new creation theology but to the content of that specific form of creation theology (Kingham 1990:97).

- (c) In an extensive argument in volume 3/2 of *Church Dogmatics*, Karl Barth gave a powerful critique of a theological interest in cosmology. He argues that cosmology is not a primary concern in the biblical tradition. Traces of various cosmologies are, of course, often found, but any references to cosmologies are made in a supremely noncommittal or critical way. There are, for example, references to the Babylonian creation myths but these are criticised at every stage. A full cosmology is never developed in the Bible (Barth 1960:6, Wildiers 1973:41-2). Moreover, since the Reformation there has been no significant theological attempt to develop a full cosmology (Barth 1960:4f). For Barth, the reason for this seems clear: cosmological concerns fall outside the soteriological focus of the Word of God.⁴³ A theological interest in creation is appropriate only in the form of a tribute to the Creator. Barth does allow for a theological anthropology because this falls within the soteriological focus on the relationship between God and humanity. Such a theological anthropology should, however, not be extended in the direction of a cosmology because the world may then come between God and humanity. For Barth, 'man' (sic) remains the goal and centre of the cosmos. In the rest of that particular volume of *Church Dogmatics*, Barth develops such an anthropology on the basis of his notion of the incarnation of Jesus Christ.

From the point of view of our recently rediscovered ecological sensitivities, Barth's argument seems difficult to endorse. We now find it difficult to conceive of an anthropology without a thorough analysis of the position of humanity in nature. And if we try to keep within Barth's soteriological focus, we now wish to reflect far more urgently on the cosmic scope of God's salvation.

Nevertheless, it remains a question whether it is really appropriate to construct a full theological cosmology. The danger of simply sanctifying the latest scientific cosmologies theologically remains prevalent in the recent debates between theology and the sciences. Theologians should perhaps be no more than 'eavesdroppers', overhearing the scientific debates and using insights from the sciences in reformulating Christian doctrines (McFague 1991:24). It is, at the same time, important to appreciate the history of the emancipation of scientific cosmologies from the tutelage of theological cosmologies. There is simply no feasible way of re-establishing a single, all-embracing religio-scientific cosmological narrative (see Tracy 1994:79). Whereas dialogue between scientific and theological cosmologies seems to be vital, a complete merger between these two disciplines will deny the scientific progress brought by the original demarcation.⁴⁴

- (d) Amid a growing postmodern awareness of difference and fragmentation it remains a vital question whether new cosmological constructions of the 'whole' are either desirable or possible. Notwithstanding his argument on the retreat from cosmology in Western theology, Moltmann (1985:37) insists that theology cannot return to the religious cosmologies of its past (biblical, patristic or medieval). An ecological theology should not satisfy the ideological need for a new closed outlook on the world. The primary task of a theological cosmology therefore could be (while overhearing the

43 In typical fashion, Barth (1960:1) argues that: 'Cosmology can arise only in the sterile corner where the Word of God with its special revelation has not yet found, or has lost again, hearing and obedience ...'

44 See Hesse (1983) for a discussion of the relationship between the truth claims of scientific and religious cosmologies.

scientific debates) to indicate some points of reference and some core moral values amid the emerging ecological crisis.

5. Towards an ecological cosmology

In spite of these warnings and reservations, the need for cosmological reflection from an ecological perspective seems clear. But how should this task be approached? Most ecological theologians who engage in cosmological reflection make extensive use of dialogue with the various sciences. The following features of an emerging ecological cosmology may be identified in the recent theological literature on this topic:

(a) Insights from astro-physicists, geologists and biologists are freely used to highlight aspects of what McFague (1993) has aptly called the 'common creation story': the *scientific attempts to reconstruct the origins of the universe* in general and the earth and humanity in particular.⁴⁵ The purpose of telling this common creation story is not primarily scientific, but moral and theological.⁴⁶ It stimulates a sense of creation's grandeur or, in the words of Thomas Berry⁴⁷ (1988:5), of the universe as a 'single gorgeous celebratory event'. It also illuminates⁴⁸ the incredibly minute position of humanity within the vast scale of space and time in the cosmos. At the same time, it shows that human beings are (at the level of complexity)⁴⁹ the product of billions of years of evolution. In the words of Sallie McFague (1991:32):

Nevertheless, because it took fifteen billion years to evolve creatures as complex as human beings, the question arises of our peculiar role in this story, especially in relation to our planet.

(b) A second feature of an ecological cosmology is also derived from scientific insights: a new discovery of radical unity and radical diversity in the universe. On the one hand, we as human beings are related to all other things in the universe: The atoms in our bodies are all made from the ashes of dead stars.⁵⁰ As Ian Barbour (1989:147) puts it: 'Cosmology joins evolutionary biology, molecular biology, and ecology in showing the interdependence of all things.' 'We are', says McFague (1993:104), 'distant cousins to the stars and near relatives with the oceans, plants and other creatures on our planet'. The common creation story, on the other hand, tells of staggering differentiation and

45 Mary Hesse (1983:51) argues that, for the general public in educated western societies, scientific accounts of the origin and destiny of the world have replaced the traditional mythical religious accounts. Berry (1988:123f) and McFague (1993:112) add that Genesis 1 no longer functions as a 'working cosmology'; a sense of the whole and where we fit in it. A new ecological cosmology will have to engage in critical dialogue with the sciences in much the same way that the priestly authors of Genesis 1 engaged in critical dialogue with the world-views expressed in the *Enuma Elish* (see Peters 1989:58). Any new story of the cosmos indeed needs to be somehow scientifically credible (Haught 1993:12).

46 There are many attempts in recent ecological theology to revise all the classic Christian doctrines (and not only anthropology or creation theology). See Moltmann (1985), Nash (1991), McFague (1993), Ruether (1992), and Wilkinson (1991) for examples.

47 The work of Thomas Berry (with Brian Swimme), *The universe story: From the primordial flashing forth to the eozoic period* (1992) has become paradigmatic in this area. (Cf also Berry 1988, and Berry & Clarke 1991.)

48 The use of the word 'illuminate' is not incidental. Thomas Berry (Berry & Clarke 1991:6f) argues that the knowledge of the common creation story, in fact, constitutes a new and decisive revelatory event in the history of world religions.

49 See Peters (1989:147). In the history of the cosmos, significance is not to be measured only in terms of space and time but also in terms of complexity and consciousness. There are, for example, more possible connections between the thousand million synapses in a human being's brain than the number of atoms in the entire universe.

50 Paraphrased from McFague (1993:44).

individuation, of the evolving of millions of species and individual specimens, each with its own unique characteristics.

- (c) Closely related to the previous feature is an almost overwhelming emphasis from ecological theologians⁵¹ on notions of interrelatedness,⁵² mutual dependence⁵³ and community. The forces of gravitation make alienation a cosmological impossibility (Berry & Clarke 1991:14). Rasmussen even calls the scientific discovery of inter-relatedness (and the theological rediscovery of community) the discovery of the twentieth century. While human communities seem to be breaking down everywhere, a new ecological awareness is dawning on the global community that no one species on earth can survive without the others.⁵⁴ The law of 'the survival of the fittest' has been replaced by an awareness of the need for sustainable ecosystems for survival.

These scientific notions of community are often developed from perspectives such as ecofeminism (McFague, Ruether), sacramental theology,⁵⁵ a creation-centred spirituality (Berry and Fox) and trinitarian theology, such as the trinitarian notion of a community incorporating the whole-earth community (see especially the work of Moltmann 1985, 1989).

- (d) A crucial feature of an ecological cosmology is its story character. We are living in an unfinished, dynamic universe (see McFague 1991:32; Swimme & Berry 1992:236f; and Haught 1990:173f, 1993:121f).⁵⁶ This is in direct contrast to the earlier static and closed theological cosmologies in which creation was 'finished'. This also suggests a sense of 'cosmic homelessness' for human beings (Haught 1990). The species *homo sapiens* appeared relatively recently and will disappear eventually from the earth. The lifespan of the earth itself is also limited to the further few billion years of the sun's life.

6. Reconstructing cosmology in the South African context

What are the implications of these debates and perspectives on an ecological cosmology for us in the South African context? The legacy of cosmological fragmentation in South

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- 51 See for example Berry and Clarke (1991:10f), Boff (1995:63), Kyung (1994), Moltmann (1989:55f), Rasmussen (1994b:122f), Sindima (1989:539f), and Tinker (1994). For Berry (Berry & Clarke 1991:13), 'The universe itself is the most basic expression of community. The universe is the ultimate sacred community.'
- 52 While appreciating this sense of cosmic inter-relatedness, it may be necessary to remind ourselves that the rise of specialised scientific disciplines was precisely an attempt to move away from the relatively abstract medieval notion of inter-relatedness and to focus singlemindedly on narrowly defined questions within particular scientific disciplines (see Toulmin 1982:229). A mere call for inter-relatedness that does not bear in mind the benefits of this scientific pursuit will remain hollow.
- 53 Berry (Berry & Clarke 1991:102) argues that we should universalise hierarchy instead of trying to diminish it. Fish are the best at swimming, birds at flying, trees at creating oxygen and humans at reflective thinking.
- 54 This is clear from the example of human beings and plants. As McFague (1993:106) puts it: 'the plants can do very nicely without us, in fact better, but we would quickly perish without them'.
- 55 See Haught's analysis (1993:88) of three dominant approaches to an ecological theology: an apologetic, a sacramental and an eschatological approach. The sacramental approach is influenced by the emphasis of 'deep ecology' on the inter-connectedness of everything. Haught argues that a purely sacramental approach cannot easily accommodate the shadow side of nature and suggests that an eschatological notion of the promise of nature is better suited for a Christian environmental ethos. The cosmos is not (yet) a paradise but only the promise thereof (Haught 1993:111).
- 56 See the comments by Haught (1990:173): 'Science has increasingly and almost in spite of itself taken on the lineaments of a story of the cosmos. The cosmos itself increasingly becomes a narrative, a great adventure. The most expressive metaphor for what science finds in nature today is no longer law, but story.'

Africa has left us without a moral 'world' to support the reconstruction of the South African society (RDP). If the moral vision of the RDP is not raised to the level of cosmological reflection there is a danger that this vision will dissipate in the myriad political and economic conflicts. If this cosmological vision is not decisively ecological this will leave room for aggressive industrial entrepreneurs, unsustainable economic policies and the universalising of the hope of getting onto the gravy train - the false hope that everyone in South Africa could maintain the standard of living enjoyed by white elites in the apartheid era.

How should we approach this task? In conclusion, I will make a few brief comments and suggestions.

- (a) The 'common creation story' (despite its scientific aura) seems to be indeed the most viable option to shock us into some form of recognition of our very minor place as human beings within the history of the earth. It has the added advantage of being both a common and a public⁵⁷ story, thus uniting all South Africans. This 'common creation story' should be popularised and taught in schools from very early on (with special reference to the prominent role of palaeontological discoveries in South Africa).
- (b) The sciences in themselves lack the moral and mythic power to construct powerful moral worlds. There is therefore a need for the various religious traditions to engage in critical dialogue about the common creation story. Religious communities need to tell stories about the origin and the destiny of the universe to their children from an ecological perspective.⁵⁸ It is also vital that these stories should take the particularity of a specific religious tradition into account in order to be recognised and appropriated within that tradition. It is interesting to note that the variety of cosmological narratives does not detract from the cosmological scope of these narratives. There are, for example, two cosmogenetic narratives within the biblical tradition (Gn 1 & 2).
- (c) The holistic emphasis on an ecological community has always been close to the heart of African views of reality.⁵⁹ In the (academic) theological reflection on cosmological narratives this vision of an ecological community should be developed. To engage in these debates we will need to retrieve and nurture the sense of community still prevalent in rural societies and in groups such as the AICs. It is at the same time important to extend these notions of community to include a community of all other living things.⁶⁰ The theology of land seems to be an appropriate locus for developing this emphasis in the South African context. Furthermore, unless we can find ways of making these notions relevant to the global debates on the environmental future of the planet, these notions of a 'community of life' (to use Harvey Sindima's phrase)⁶¹ may easily become little more than a romantic memory of an irretrievable African past.

57 See McFague (1991:32-33) who argues that it is common because all creatures on this planet share a common origin; it is public because it is, unlike sectarian religious cosmogonies, available to all who wish to learn about it.

58 See the excellent example of the contribution (for children of all ages) of Butterworth and Inkpen (1994) from within the Christian tradition.

59 See Berhane-Selassie (1994:169f).

60 See the World Council of Churches' new 'Theology of life' programme in Unit II on Justice, Peace and Creation. See Granberg-Michaelson (1994).

61 See Sindima (1989) and Asante (1985) for examples of an awareness of the link between cosmology and environmental ethics within an African context and from a Christian perspective. Sindima (1989:50) emphasises

- (d) Within the Christian tradition (and at a conceptual theological level), it seems promising to develop this notion of an ecological community of life on the basis of a Christian understanding of love.⁶² The concept of love is clearly recognised as belonging to the heart of the Christian message (given its christological focus). If understood as primarily an (inter-subjective) relationship and not a (subjective) attitude or deed, love forms the basis of a Christian sense of community. If this notion of love is developed in a specifically trinitarian way, it retains a strictly theological emphasis while also acquiring a cosmic scope. In the trinitarian vision God is seen as transcending the categories of space and time while God is also immanent in the cosmos through Christ and the Spirit.

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the notions of 'community' and the fullness and 'bondedness of life' in African thought: 'The African idea of community refers to bondedness; the act of sharing and living in the one common symbol - life - which enables people to live in communion and communication with each other and nature.'

⁶² See my own attempt to develop the cosmological implications of the notion of relationality and Christian love from an ecological perspective (Conradie 1994). For a similar attempt, see Kinghorn 1990:100f.

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