Ecological theology within the church and society programme

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ABSTRACT

The ecological crisis was a complex social phenomenon which caused some concern and public debate in the Western industrialised nations in the late sixties and early seventies. The crisis situation has been discussed in the World Council of Churches, which formulated its goal in social ethics in terms of the Just,Participatory, and Sustainable Society. Most of the ecumenical discussions about the sustainable society have taken place in the programme of the Church and Society subunit, which has been concerned with the place of technology in such a society. It held a major conference at the Massachusetts Institute of Technology in 1979, on 'The Contribution of Faith, Science and Technology to the Struggle for the Just and Participatory and Sustainable Society', and it had already conducted an intense investigation from 1969 to 1974, on 'The Future of Man and Society in a World of Science-Based Technology'. The basic problem seems to lie in ethics rather than systematic theology; but I argue in Chapter One that the ecological crisis involves questions at the level of systematic theology. My Chapter Two is concerned with making precise the concept of an 'ecological theology' within theological discourse and adducing as examples ecological theologies from a Barthian theologian, a process theologian, and a biblical theologian. Chapter Three analyses the ecumenical materials, and places the MIT conference in the ethical and theological history of the Church and Society programme. Four main theological approaches are found in the sources: an approach which sees nature as an entangling force from which humanity is to emancipate itself by scientific and technological skill; a theology of hope; a process theology; and an Orthodox approach. These are described , analysed, and evaluated in Chapter Four, and the orientation they give for Christian life in the technological culture is described. The conclusions of this thesis include some constructive criticisms aimed at assisting the Church and Society programme and enhancing its theological adequacy.

ECOLOGICAL THEOLOGY WITHIN THE CHURCH AND SOCIETY PROGRAMME OF THE WORLD COUNCIL OF CHURCHES, 1966 — 1979.

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DECLARATION.

I, James Murdoch McPherson, declare that none of the material contained in this thesis has previously been submitted by me for a degree in the University of Durham or in any other university whatsoever.

STATEMENT OF COPYRIGHT.

CHAPTER ONE: The Problem

This thesis is concerned with the Christian theological response to the so-called 'environmental crisis' of the late sixties and early seventies. Inevitably there is great difficulty in setting so recent a portion of human history in its proper context, and still greater difficulty in assessing the adequacy or otherwise of the Christian churches' activity. The full significance of the 'crisis', if crisis it is, will only become apparent with the passage of time. It will also take time for the theological issues and implications to become clear and to be seen in proper perspective.

This thesis represents an attempt to work towards such a perspective, by subjecting an important and still continuing programme of enquiry to theological analysis, and by offering certain provisional conclusions. It focusses on the theological adequacy of the enterprise on which the World Council of Churches has set out in its Church and Society programme, and its conclusion is that there are some failings to be identified and corrected.

The failings are theological, and are discerned by comparison with the attitudes and beliefs which appear to be demanded by fidelity to the Christian gospel. But that gospel has,notoriously,given rise to a variety of responses and thus also to vigorous debate among Christians about the stances and actions appropriate to the different challenges which the Church has faced in its history. It may be argued that the churches have been better served by such vigorous internal debate than by the imposition of uniformity of opinion, belief and ethics. The claim of this thesis is, accordingly, not so much that certain failings can be or have been correctly identified; rather, that the structure of the contemporary debate falls into a discernible pattern, in which certain alternatives appear with particular combinations of advantages and disadvantages. The discernment of such a pattern, and the evaluation of the alternatives, is one of the achievements of this thesis which will help achieve, eventually, a true perspective on the theological response to the environmental crisis.

This thesis lays claim to a combination of 'cheap' and 'expensive' forms of originality. 'Cheap' is the not surprising fact that no one has so far attempted (to the author's knowledge) to analyse the material under discussion here; but I set no store by cheap originality. Much more expensive, however, is the hard-won construction of a framework within which to handle the material. The framework yields

certain conclusions, but the value of the conclusions rests largely on the adequacy of the framework. The thesis attempts to show that some such analytic tools are required by the complex subject matter, and that when they are employed the results are genuinely illuminating. There remains, needless to say, plenty of room for disagreement with the specific theological criticisms passed here, and room for further debate on the idea and content of theological response to the ecological crisis.

In order to launch the study, however, it is necessary to grasp the character of the situation facing the churches in the sixties. The so-called environmental crisis was a complex social phenomenon of the industrialised countries, into which theology was drawn. My first two chapters set out to explain why this social phenomenon involved systematic theology, and to justify writing a thesis in systematic theology which focusses on the environmental crisis. After justifying the limits chosen for this thesis, this first chapter seeks to provide a brief account of the crisis (section 1), to survey some of the theological issues which emerged from it (section 2), and to survey the theological climate and resources of the late sixties (section 3), in order to place the concept of an ecological theology in a social, historical, and theological context. Section 4 concludes the chapter with a brief outline of the future development of the thesis, and so prepares the way for the extensive theological discussion of the 'ecological theology' concept undertaken in Chapter Two.

But: why choose the ecumenical forum? And why the period 1966 - 1979? The decision to concentrate on the World Council of Churches and more particularly on the programme of its Church and Society subunit may be justified very simply.

The WCC is an inter-denominational and international body which has traditionally included specific consideration of questions of social ethics and the churches' life in and impact upon the world. The global environment crisis and the Christian response to it, whether ethical or theological, is exactly the sort of issue that falls within the bailiwick of the Church and Society subunit. As I shall show in Chapter Three, they have investigated this issue at great length. Their investigations showed the need for theological as well as ethical reflection, and there is therefore a significant body of pertinent material for theological analysis.

There is no comparable volume of material available for analysis.
(1) So it remains to justify the choice of period, 1966-1979.

The Church and Society subunit is heir to the Life and Work Movement which originated at the Edinburgh Missionary Conference of 1910. (2) Before its merger with the Faith and Order Movement in 1938, and its eventual incorporation into the World Council at its formal inception ten years later, it held two major conferences. The first was 'The Universal Conference on Life and Work', held at Stockholm in 1925. The second was held in Oxford in 1937, on the theme 'Church, Community and State'. Since those conferences, the Church and Society subunit has held only two other comparable conferences: the first of these was held at Geneva in 1966, on the theme 'Christians in the Technical and Social Revolutions of our Time'; the second at the Massachusetts Institute of Technology (Cambridge, Mass.), on 'The Contribution of Faith, Science and Technology in the Struggle for a Just, Participatory and Sustainable Society', in 1979. These two Church and Society conferences are the natural terminus ad quo and terminus ad quem for my study.

They are the natural termini, but they are also significant termini. The Geneva conference of 1966 was part of a major breakthrough in ecumenical social ethics, it

> 'was a landmark which is likely to stand out in the church history of this century'. (3)

This makes the Geneva Conference a good starting-point. It has the added advantage of indicating the climate of ecumenical social ethics and theology before the ecological crisis became a theological issue, since the crisis did not impinge upon the ecumenical discussions to any significant degree until the early seventies. (4) During the course of the Church and Society programme, as I shall show in Chapter Three, it is possible to chart the development of the theological response to the crisis right up to the 1979 conference. The latter conference was preceded by years of reflection on the theological and ethical issues, and so marks a natural climax to the discussions. Since that conference however, and partly because of it, the Church and Society programme has concentrated more on the questions of energy resources and distribution, the ethics of nuclear technology, and the ethics of biomedical engineering. The 1979 conference thus makes an appropriate stopping point for my study. Hence the title of my thesis: Ecological Theology in the Church and Society Programme of the World Council of Churches, 1966-1979.

1. The environmental crisis.

This section describes the environmental crisis by listing some of its salient features and some of the responses it evoked. I am not attempting a thorough historical analysis, or to analyse the crisis from the viewpoint of sociology or social psychology; though such analyses would be interesting in themselves, they are beyond the scope of this thesis. Instead, I wish only to show that there was a complex social movement which culminated in a concern about issues broadly related to the environment, why the expression 'environmental crisis' was used, and that this crisis and movement can be dated to a specific period of recent history. It is this movement which provides the socio-cultural background to my thesis. The section concludes by showing that the ecological crisis has led to the development of an 'environmental philosophy'. This makes it plausible to ask whether the environmental crisis may also affect theological discourse and give rise to an 'ecological theology'. Thus the way is prepared for section 2.

Human concern about the environment is not a new phenomenon. The bible shows a perception that environmental malaise is incongruous with the right ordering of human existence:

> 'like a muddied spring or a polluted well
> is the righteous man who gives way to the wicked'

(Proverbs 25:26), and the general assumption is that the state of the land reflects the moral state of its inhabitants.(5) Plato, for his part, lamented the soil erosion and deforestation of ancient Greece:

> ' ... what now remains of the once rich land is like the skeleton of a sick man, all the fat and soft earth having wasted away, only the bare framework is left. Formerly, many of the present mountains were arable hills, the present marshes were plains full of rich soil; hills were once covered with forests, and produced boundless pasturage that now produces only food for bees. Moreover the land was enriched by yearly rains, which were not lost, as now, by flowing from the bare land into the sea, the soil was deep, it received the water, storing it up in the retentive loamy soil; the water that soaked into the hills provided abundant springs and flowing streams in all districts. Some of the now abandoned shrines, at spots where former fountains existed, testify that our description of the land is true.'(6)

In Britain, air pollution has been a persistent problem. The first law to stop the smoke and smuts of medieval London was passed in 1273, and in 1661, it was charged that her citizens

> 'breathe nothing but an impure and thick Mist, accompanied with a fuliginous and filthy vapour, which renders them obnoxious to a thousand inconveniences, corrupting the

> lungs and disordering the entire habit of their Bodies; so that Catharrs, Phthisicks, Coughs, and Consumptions rage more in this one City, than in the whole earth besides'. (7).

Atmospheric pollution by industry, particularly from factories producing soda, led to the passing of the first Alkali Act in 1863. There have also been a number of Clean Air Acts, dating from 1956, giving local authorities legislative power against smoke emissions from domestic fires as well as industrial furnaces. (8) Evidently pollution is no new problem, nor is man's concern about the state of his environment a new phenomenon. What, then, is the new factor in the modern concern that would justify the use of the term 'crisis'?

The new factor is the extent and scope of the human impact upon the environment, and its consequent repercussions upon human existence. I note two aspects in particular: population, and pollution.

The increase of the human population puts pressure on land. It is land which supplies the human diet, through agriculture or by providing habitats for the animals on which man preys (sheep, cattle, etc). On the other hand, land is also needed for human habitation. Population increase requires greater efficiency in the use of land for food production; the decreasing area of land must sustain the increasing population. There is a point of no return. Thus arguments for limiting population growth must consider the earth's capacity to feed the human species. (9)

The question of population and land is part of the broader question of resource availability and the viability of species. This was considered by T.R. Malthus in the late eighteenth century, and his arguments may be supported by the contemporary ecological studies of the population dynamics of many species. In brief, his argument was that population increase must eventually be checked by natural limitations which in their turn restore the equilibrium between population and resources. These 'natural limitations' are effected by starvation, predation, and disease, so that excess individuals are culled out (usually before they reproduce). So population is checked and, in the case of the human species,

> 'all these checks may be fairly resolved into misery and vice.' (10)

Man is therefore in a dilemma. Food production has advanced and kept ahead of the population increase, and this has served to postpone the Malthusian limitations rather than eliminate the possibility of their

occurrence. But if humanity relies on continual technological advance to forestall the limitations (by improved agricultural technology, for example), this jeopardises ecological homeostasis and puts human survival at risk through ecological breakdown. The other alternative is to substitute some other limitation to population growth (such as rational family planning) rather than population control by starvation and selective predation. (11) There are other very difficult questions to be considered as well: the social effects of population increase or, conversely, of family planning; the question of distributive justice in the sharing of the earth's resources; and the question of defining an appropriate 'human' quality of life in order to set humane goals for population limits. These questions have theological aspects. But the 'crisis' aspect of the population question is that the time for decisive action seems to be upon us, if not already past.

Malthus wrote in 1789. The world's population reached 1 billion (i.e. 1000 million) about 1600 A.D. The second billion was reached in only 300 years, partly as the result of the improvement in health care which lowered the death rate per thousand and significantly improved the infant survival rate, and partly as a result of the increased food productivity and better distribution made possible by new inventions. The third billion then took 50 years (1900-1950), and the fourth only 30. It is likely that the global population will be 7 billion by the turn of the century. (12) This rate of population increase means that the natural checks of the Malthusian argument may occur within the lifespan of the contemporary generation, and overtake humanity more rapidly than technological innovation, development, and ingenuity may save him. There are a number of variables and unknowns in this simple fear, but the Malthusian possibility must be faced and forestalled by planning in so far as this is possible. This is one aspect of the environmental concern which merits the word 'crisis'.

Environmental pollution is another major area of concern. This includes air and water pollution as well as thermal pollution with its attendant climatic changes. It also includes concern about the effects of pollution upon ecosystems, the transmission of pollutants along food chains, and the effects of pollution on human health. In the sixties, two concerns came to prominence. One, that this pollution was jeopardising the survival of certain species,

unnecessarily and perhaps wantonly. Second, that human health was also jeopardised unnecessarily and without proper appreciation (or even study) of the effects. For example, certain pesticides are progressively concentrated along food chains, reaching dangerous concentrations in the species at the summits of these chains (of which humanity is one). These pesticides are retained in fatty tissues, and the dosage is cumulative because the chemicals are inherently very stable. (13). The pesticide example underlines the connection between population increase and food production, mentioned above: as the ratio of population to production narrows, there is less and less room for any species which competes with humanity for the ecological raw materials, and the use of pesticides is therefore necessary, even at the risk of food contamination. This becomes a dilemma of short-term benefit versus long-term risk.

This dilemma may be illustrated by the agricultural use of DDT. (14) It is a persistent chemical, passed along food chains and accumulating in organisms. It is also highly dispersable, since it vapourises into the atmosphere, is blown by winds, dissolves in rain, and may accumulate in rivers and seas and lakes. It is used in temperate and tropical countries, but has been located in the fatty tissues of penguins. (15) Fish and birds are particularly vulnerable to its effects. No one knows what the long-term effects will be of generations of living organisms having DDT in their bodies all their lives. It is passed through human milk, and is found in cow milk, so 'all their lives' is a real prospect for the human species. One writer claims that there is some evidence that DDT could be carcinogenic in man. (16) This is an ecological backlash. On the other hand, it may also be claimed that millions will die of malnutrition or infectious disease if the use of pesticides in agriculture is limited too drastically. (17).

This is part of the broader problem in agricultural technology: new techniques are being used, new and more virulent chemicals developed and applied, new biological varieties invented by genetic technology (with an eye to food productivity of grains, in particular) —— but with no systematic investigation, or appreciation of, the ecological consequences. (18) The concern is that man may inadvertently destroy the ecological substructure which supports his existence, or poison himself by the accumulation of man-made chemicals absorbed from the air, and his food and water. Thus, one writer:

> 'Had DDT been more toxic than it is to the micro-organisms in soil and water that play essential roles in the cycle of nature, we might have triggered a global catastrophe by ever releasing it. We were lucky that time. With many of the chemicals we release deliberately or as a by-product of industry we are playing environmental roulette.' (19)

And another speaks of the 'haunting fear' that the environment may be so corrupted that human life is no longer viable, adding that

> 'what makes these thoughts all the more disturbing is the knowledge that our fate could perhaps be sealed twenty or more years before the development of symptoms.'(20)

It is therefore fair to describe the concern about the extent of chemical intervention in and control of natural and ecological structures as 'critical'. The environmental situation can be described as an ecological crisis. But: is the picture given above unduly pessimistic, based upon exaggerated facts and figures? There was sufficient concern at an international level for the United Nations to hold a special conference on this theme at Stockholm in 1972; this in itself shows that the situation required serious consideration and internationally concerted action. The Secretary-General to the Conference commissioned Dr. René Dubos to serve as Chairman of a distinguished group of experts to serve as advisors in preparing a report for the Conference: more than seventy scientific and intellectual leaders from fifty-eight countries made detailed contributions.(21) The resulting report speaks of the 'element of extreme urgency', and the present (1972) as 'a very critical time'. (22). The editors note that there is consensus amongst the experts, and that the environmental problems are global in extent (thus requiring consideration and action under the auspices of an international body such as the U.N).(23) Where the experts disagree, their disagreement arises from differences in attitudes towards social values, and not from uncertainties about the scientific evidence.(24) In other words, the U.N. was right to call a conference on this theme. The conclusion of the report's first chapter shows the urgency and the measure of concern generated by the expert evidence:

> 'In short, the two worlds of man — the biosphere of his inheritance, the technosphere of his creation — are out of balance, indeed, potentially, in deep conflict. And man is in the middle. This is the hinge of history at which we stand, the door of the future opening onto a crisis more sudden, more global,

> more inescapable and more bewildering than any ever encountered by the human species and one which will take decisive shape within the life span of children who are already born.' (25)

What I have shown so far is that concern about the human relationship to the environment is justified, and that the present and foreseeable human impact on the environment has posed questions requiring urgent consideration; therefore, that the expression 'ecological crisis' is an accurate assessment of the situation. To conclude this section, I will turn very briefly to some of the philosophical and ethical discussions this crisis has evoked. This will serve three purposes: it will show that theological response to the environmental crisis is part of a wider and more complex response, which was evident at the intellectual levels of philosophical and theological reflection as well as at the more practically oriented levels of politics, economics, and the direction of research and development; it will help show that there is a prima facie case for the development of an ecological theology which may be comparable in some ways to the development of an ecological philosophy; and it will help illuminate the subsequent discussion of the theological issues.

An early philosophical response to the crisis, which was well received at the time and is now often cited, is John Passmore's book, Man's Responsibility for Nature. Ecological Problems and Western Traditions. (26) Passmore is Professor of Philosophy at the Australian National University in Canberra. He set out to discover whether there were any sound philosophical arguments for the statements that pollution ought to be reduced, resources conserved, the rate of population growth reduced, and wilderness areas and animal species preserved. He concludes that there are, but that the conclusions also require concessive provisos. (27) Then he asked why the arguments have taken 'so long to win the slightest recognition'; he concludes that false views about man's place in nature played some part in the delay. (28) Effectively, his subsequent argument is that only a meta-ethic which recognises the primacy of human interest contains the potential for preserving both the environment and human creative freedom. (29)

Passmore's book was the subject of an extensive critical notice in the Australasian Journal of Philosophy by Val Routley. (30) Passmore seeks, she says,

> 'to demonstrate that present environmental problems can be solved (and can only be solved) within the fundamental Western ethical and metaphysical tradition ... [He] accepts that there are serious ecological problems, and that changes are required. But [he argues that] there is no need for the rejection of the basic ethical value system of Western civilisation, and its rejection is, indeed, dangerous.' (31)

She then takes Passmore apart, piece by piece, arguing that his thesis rests on a false dichotomy and special pleading, and includes the occasional lacuna and circular argument. (32) The false dichotomy relates to the 'Dominion Assumption' which undergirds the environmental ethic of the West. This assumption is

> 'that it is permissible to manipulate the whole earth and what it contains exclusively in the human interest; that the value of a natural item is entirely a matter of its value for human interests; and that all constraints on behaviour with respect to nature derive from responsibilities to other humans.' (33)

The false dichotomy is, that rejection of the dominion assumption necessitates commitment to the view that nature is sacred and has rights of its own independently of man, and that therefore manipulation and even interference of any sort is not permissible. (34) Val Routley is arguing for a middle position for environmental ethics. Philosophically, this may be based on

> 'the deontic distinction between recognising obligations concerning or with respect to an item, as opposed to recognising obligations toward an item... Thus one can recognise that an item is a proper object for moral concern, and that constraints may apply on actions with respect to it, without effectively attributing to it rights, especially rights similar to those normally attributed to humans.' (35)

This thesis will not attempt to follow the course of the philosophical debate. (36) For my purpose here, the important fact is that the 'traditional Western environmental ethic' (however that is understood) has been questioned as a result of the environmental crisis, that alternative approaches are being developed, and the consequent change in philosophy and ethics makes it possible and legitimate to speak of an 'environmental philosophy' as a field of philosophical-ethical endeavour. Another important fact is that the Routley-Passmore debate has been repeated in the theological context, within the Church and Society programme, in the debate between Thomas Sieger Derr and the process theologians. (37)

This may lend some plausibility to the idea that 'ecological theology' may be a legitimate field of theological endeavour, the counterpart in theology to the change in philosophy evoked by the ecological crisis. The discussion of the concept of an ecological theology, and the legitimacy or otherwise of its claim to be 'theology', is deferred until Chapter Two. The next section prepares the way for Chapter Two, by showing how the environmental crisis provoked discussion of theological issues.

2. Theological overtones to the crisis.

The preceding section outlined some of the issues and concerns associated with the environmental crisis, and concluded with a brief account of the philosophical and ethical debate it provoked. This section takes the discussion into the theological realm, and indicates two aspects of the theological response to the crisis. The first is at the level of exegesis and hermeneutics: Christian theology was charged with culpability in the ecological crisis, because of the imago Dei and dominium terrae traditions. So one sort of response has been to focus attention on the appropriate texts and see if the charges should be upheld. Another sort of response has been to look at the history of the interpretation of these texts, and this leads to the second level of theological response, at which the influence of Descartes and Kant is the subject of critical attention. As a result of the discussions at these two levels, it becomes clear that the environmental crisis also provoked something of a crisis for theology as well. In fact, this section concludes with the question, whether Christian theology may respond to the ecological crisis and retain its Christian character. This makes it necessary to survey the theological climate of the sixties, as the contemporary starting-point for theological response; this survey is undertaken in section 3.

The charges referred to above, that Christianity was culpable, are really hypotheses of social history and should therefore be debated with appropriate social and historical arguments. I do not intend to cover the debate. But since these charges have been couched in theological guise and raise issues for theological discussion, I intend to describe and discuss them at the theological level.

For several decades, a strong case has been made for the proposition that the Judaeo-Christian doctrine of creation was of major significance in providing a philosophy of nature which enabled and eventually catalysed the development of empirical science. (38) Because nature had been stripped of supernatural significance, it was made available to humanity for investigation by science and manipulation by technology. (39) This argument was turned against Christian theology in a provocative essay which has been cited frequently and reprinted in anthologies which continue the debate: 'The Historical Roots of our Ecologic Crisis' by Lynn White, Jr. (40) White claims that it was the Western Judaeo-Christian tradition which was historically responsible for the development of science and tech-

nology and therefore for the environmental deterioration this development has engendered. Western Christianity is a massively anthropocentric religion within which, from early on

> 'no item in the physical creation had any purpose save to serve man's purposes'.(41)

Animistic inhibitions to the exploitation of nature evaporated, leaving nothing to protect it from abuse by humanity. God transcends nature, and man was made in God's image to transcend nature. Thus Western Christianity

> 'not only established a dualism of man and nature but also insisted that it is God's will that man exploit nature for his proper ends.'(42)

thus

> 'Christianity bears a huge burden of guilt'

for the pollution and environmental deterioration of the contemporary crisis.(43) In a later paper, White concluded that

> 'the religious problem is to find a viable equivalent to animism'.(44)

The historian Arnold Toynbee came to a similar conclusion:

> 'If I am right in my diagnosis of mankind's present-day distress, the remedy lies in reverting from the Weltanschauung of monotheism to the Weltanschauung of pantheism, which is older and was once universal. The plight in which post-Industrial-Revolution man has now landed himself is one more demonstration that man is not the master of his environment — not even when supposedly armed with a warrant, issued by a supposedly unique and omnipotent God with a human-like personality, delegating man to plenipotentiary powers. Nature is now demonstrating to us that she does not recognise the validity of the alleged warrant, and she is warning us that, if man insists on trying to execute it, he will commit this outrage on nature at his peril.'(45)

This thesis of White and Toynbee has been echoed, with variations.(46) In terms of the philosophical-ethical debate mentioned at the conclusion of section 1 above, it represents the rejection of the Dominion Assumption and argues for the other extreme, the Sacralisation of Nature. The American ecologist Frank Fraser Darling argues for a middle position, commending an ethic of human aristocratic servanthood on ecological grounds.(47) Darling states that this is not the attitude espoused by traditional Christianity, which has instead

> (banished all living things other than the human species from the partnership of God and himself, and developed the convenient conviction that God created the rest of living things for the use and delectation of man'.(48)

His charge is that

> 'Orthodox religions of the Judaic-Christian phylum have failed us badly, historically in the Scriptures, philosophically in having split the community life by the figment of soul as a human prerogative in association with God, and currently in their tardiness to face the consequences of uncontrolled human increase.' (49)

He, however, holds out some hope that the churches may come to their senses and give greater attention to the ethical issues emerging from the ecological crisis. (50)

The rejection of monotheism in favour of the sacralisation of nature, as recommended by White and Toynbee, is vulnerable to the same 'false dichotomy' criticism that Val Routley levelled against Passmore. F.F. Darling has seen the issue more clearly and attacked at the right point, on the imago Dei and dominium terrae flank. There are four questions involved:

(1) How are the biblical texts about 'human dominion' and the 'image of God' (Genesis 1:26 - 28, Psalm 8:5 -8, etc.) to be interpreted? Are the two themes related?

(2) How have these texts been interpreted in the history of theology?

(3) What factors have influenced theology, if there is any discrepancy between the traditional and the exegetically appropriate interpretations of the texts?

(4) Are there any such influences which are now to be rejected? In other words, is there any need to reject the traditional interpretations and engage in the reconstruction of imago Dei and dominium terrae theologies?

These are big questions, but the limitations of space preclude anything more than brief treatment here. I will only attempt to outline the contemporary discussion of the questions. Question 1 is a matter of specialist study in exegesis and biblical theology: questions 3, 4, and to some extent 2, develop into questions of the influence of philosophy on theological discourse, and I will give a brief account at that level.

The 'dominion' and 'image' texts have their own interest, and have been discussed extensively for their own sakes and not just in order to respond to the claims made by White and the others. The Old Testament references to the image of God in man are tantalising in their brevity and scarcity, occurring only in Genesis 1:26, 5:2 and 9:6. Thus their meaning has to be inferred from syntactical and contextual

considerations, with appropriate reference to cognate ideas in the Old Testament and in the religions of the surrounding peoples. Debate about their interpretation may therefore be wide-ranging, and always includes the possibility that new evidence will come to hand.(51) The consensus is that theology should not attempt to 'locate' the image by trying to specify which aspects of human existence may constitute the image and likeness of God in man. White's argument, however, turns on the identification of the image of God in man with the dominion that humanity is to exercise; the exegetes' concensus precludes that identification and dismisses his argument by implication.(52)

If the charges made by White, Toynbee and Darling may be dismissed on exegetical grounds, they may nevertheless be sustained at the philosophical level. Here, the argument is that Western theology has followed Francis Bacon and René Descartes in adopting a Pelagian interpretation of the dominium terrae texts.(53) This raises the question of Descartes' influence upon Western theology, and I aim to show how the tradition built on Descartes and Kant has been 'caught out' by the ecological crisis.

Francis Bacon had interpreted Genesis 1:26 - 28 in the light of the manifest potential of the new science: by his creative genius and sustained effort, humanity could win back the dominion over nature it had lost through Adam's sin.(54) Some thirty years later, Descartes published his Discourse on the Method and spoke of man's potential ability to become 'the masters and possessors of nature' by virtue of human science and technology. This was one of the practical consequences of the Cartesian epistemology, in which the self-conscious 'self' was the arbiter of knowledge. God's existence was proved by the knowing subject, and God's existence in turn guarantees the veracity of the human knowledge of the world. The world is the res extensa, separated radically from the knowing subject (res cogitans). This establishes a duality of thinking subject and neutral object, linked by a 'dominion' of mastery and possession(55)

Kant maintained and developed this duality, in three ways. First, he showed that it is only when the human intelligence imposes order on sensory experience that the world is knowable by man at all. Second, he undercut the proofs of God's existence which start from the human experience of the natural world. This meant that the natural world could be the subject of rational reflection and investigation (as it is in the empirical sciences), but was of lesser theological importance.

Is there any way, then, for human thought to contemplate the divine? Kant's third development separated humanity from nature even further, by making the ethical aspect serve as a way to God: he held that if man listens to the moral law within and reflects on the implications of the categorical imperative, he may be led to the place where God is to be found, or at least, where it becomes necessary to think the thought of God.(56)

Theology was therefore encouraged to view the self as the locus of man's relationship to God, and to concentrate on subjectivity, self-awareness, and selfhood as expressed in history or existential life.(57) At the same time, it was encouraged to hold natural theology under suspicion, and to omit reflections on the world of nature from theological discourse. This was further exacerbated in the nineteenth century when religious dogmatism had to defer to the confident scientific interpretations of natural phenomena. Darwin's theory opposed dogmatic assertion with rational argument, and explanations which were both cogent and convincing. The study of the natural world for its own sake gave understanding and an ability to explain, predict, and control the course of natural phenomena which surpassed theology's knowledge of the natural world. Here, Kant provided a city of refuge for beleaguered theologians, and the result was a sort of tacit agreement about the realms of discourse appropriate to science and to theology. Natural scientists would keep to the natural world and attempt to shake off prejudices inherited from theology and philosophy; for their part, theologians would leave the natural world to the scientists, and concentrate on religion, human experience, and the relationship between God and man. (58)

This meant that the Bacon-Descartes interpretation of Genesis 1:26 - 28 was accepted without question, since theology was concerned with the relationship between man and God and not with humanity's relationship to nature. The impressive achievements of science and technology, and the benefits they bring to human existence, on the one hand, and their increasing ability to bring constructive order to the destructive chaos of nature's forces on the other, gave added plausibility to this interpretation. (59) Thus one writer could state that the contemporary (1979) human attitude to the nonhuman creation

> 'presupposes the separation, or rather the rupture, of man from nature. Rene Descartes, with his separation of <u>res cogitans</u> from <u>res extensa</u>, stands

> as its symbol ... [This rupture] has penetrated so deeply into the modern theology of the West that this theological tradition can only with difficulty correct it...'(60)

That is, the interpretation of the dominium terrae texts has been taken from Descartes and developed, erroneously, along Cartesian (and Kantian) rather than biblical and Christian lines.

Another (and related) result of this division of labour has been the development of a doctrine of creation which has little to do with the natural world. That world is theologically neutral, and only becomes relevant to theological discourse when it may be related to human experience.(61) This may be seen in some Old Testament theologies, in which 'creation' has become a datum for the interpretation of history (an approach which avoids possible contention with scientific interpretations of the natural world and its origins). Nature has been removed from the doctrine of creation.(62)

In fact, it is possible to argue from the philosophical viewpoint that a doctrine of creation which deals with nature can only be incoherent if it is built on the Western philosophical tradition of Descartes and Kant, Berkeley and Hume. One philosophical theologian argues that, insofar as it has accepted their conclusions, theology has adopted a

> 'fundamentally non-Christian vision of the world'.(63)

His hypothesis is that Christian theology is impossible unless the world is seen as creation, and he is therefore constrained to ask whether Christian theology may no longer be possible. Using the expression 'modern theology' to describe theology built on the philosophical foundations of Descartes, Berkeley, Hume and Kant, he states that the outcome of the contemporary theological situation is that

> 'no truly modern theology is fully Christian, no matter how great a nostalgia for Chrstian faith it may betray',

for the vision of the world as creation is

> 'lost to the modern consciousness'.(64)

The only way to a truly Christian vision of the world as God's creation, and the only way in which Christian theology is viable philosophically, is to adopt the foundation of a suitable 'post-modern' philosopher. In other words, the doctrine of creation may only deal with the natural world if it repudiates the Cartesian and Kantian philosophical tradition and chooses another.(65)

Viewed in isolation, this may represent nothing more than a call to theology to take a fresh look at its philosophical assumptions and their implications; that is, a call to a theoretical debate which might interest professional theologians but contain little practical interest for or effect on the behaviour of the ordinary Christian believer. The ecological crisis has taken this discussion out of the realm of theory, and shown that the choice of philosophical foundations may have far-reaching implications in environmental ethics.

The situation can be summarised as follows. Theology had allowed nature to become theologically neutral, and had opened the way for scientific analysis and technological manipulation of nature by man for humanity's benefit. All to the good. But at the same time it allowed the possibility for exploitation and abuse, by failing to provide ethical criteria to guide the scientific and technological enterprises and a Christian attitude to nature by which these enterprises could be evaluated. Instead, it followed Bacon and Descartes and encouraged these enterprises uncritically, interpreting the dominium terrae texts from a Pelagian standpoint. If Descartes and Kant and their philosophical legacy provide the basic philosophical concepts, assumptions, and methods for theological discourse, however, there is no way for theology to deal coherently with nature and to redress this situation. This leaves Christian environmental ethics without theological foundation. If a distinctively Christian environmental ethic is deemed necessary, and if a theological foundation for such an ethic is also necessary, this raises the problem of how nature may be a subject of theological discourse. Thus the environmental crisis, which appears at first sight to involve ethics but not systematic theology, has taken on a fundamentally theological dimension.

This section has shown that the ecological crisis has brought some theological questions to prominence, namely the interpretation of the 'dominion' texts, the place of nature in theological discourse, and the wider question of the appropriateness or otherwise of the philosophical foundations on which theological discourse is based. It therefore shows that there is a prima facie case for the existence of an 'ecological theology' as a type of theological discourse within the discipline of systematic theology, comparable to the development of an'environmental philosophy' within the discipline of philosophy (as described in section 1 above). When the ecological crisis came

to prominence, what were the theological resources available for the first attempts to formulate an ecological theology? The next section will survey the theological scene of the sixties, to see how some of the theological approaches evident then were able (or unable) to deal with the question of nature.

3. Theology in the sixties.

Section 2 showed that the ecological crisis had theological as well as ethical dimensions, by raising the question of the place of nature in theological discourse. This section attempts a brief survey of theology in the sixties, in order to see how the contemporary theological approaches could conceivably respond to the question of nature and to the environmental crisis. In other words, it attempts to discover what resources were available in the sixties for the task of formulating an ecological theology. The survey will show, in fact, that there were resources available which appear to be potentially adequate to the task, and therefore that it is theoretically possible to formulate a distinctively christian and theological response to the environmental crisis.

It is necessary to limit the survey very carefully, because the 'theology of the sixties' was an extremely complex and diverse phenomenon. In one survey, it is described as

> 'the"decade of the dilettantes", [during which] theological fashions changed as quickly as fashions in haute couture. Positions had scarcely been expounded when they were abandoned and there was a move to something new'.(66)

Theological thought in the sixties

> 'seemed to be falling into utter disarray and fragmentation',

the scene was one of

> 'chaos and bewilderment';

but the writer continues that the storm later gave way to calm and more profound reflection.(67) My brief survey must be highly selective, in consequence, because I cannot hope to do justice to the whole of the theological scene. I will begin by stating main themes and trends of the sixties which I am excluding from consideration.

I am not directly concerned with the frontier interaction between philosophy and theology, so I will not be attempting to trace the philosophical antecedents of and influences upon the various theological figures.(68) Nor will I follow through the sophisticated discussion of religious language and the impact on theology of philosophical Logical Positivism. (69). I am not going to attempt to ascertain how far the theology of the sixties was influenced by, or repudiated, the Cartesian- Kantian philosophical heritage; this is part of the wider problem of philosophical foundations for theology, and beyond the scope

of my discussion which is immediately concerned with the place of nature in theological discourse, and not with questions of philosophical principle.(70)

Since the Roman Catholic Church is not a member church of the World Council of Churches, its theological history during the sixties is mostly remote from the World Council discussions and has little theological influence on them.(71) This excuses me from the task of assessing the theological impact of the Second Vatican Council: or the works of Bernard Lonergan and the 'transcendental Thomists', Hans Küng, Karl Rahner, and Edward Schillebeeckx.(72)

The survey is thus narrowed down to Western Protestant theologians, but the field is still dauntingly broad and complex. There are the giants — Barth, Brunner, Tillich, Gogarten, Donald and John Baillie, and Reinhold and H.Richard Niebuhr, most of whom died or became inactive during the sixties. There were the posthumous influences of Pierre Teilhard de Chardin and of Dietrich Bonhoeffer. There was a persistent dissatisfied core of conservative theologians which included eminent figures such as Langdon Gilkey, E.L. Mascall, and John Macquarrie. The sixties also saw the rise of process theology in the Chicago school under Charles Hartshorne, represented by John B. Cobb, Jr., Schubert Ogden, and Daniel Day Williams; the development of the 'radical' ('God is dead') theologies of Paul van Buren, Thomas Altizer, and William Hamilton; the opening of new dialogue, or at least new rapprochement, between science and theology, involving specialists in both fields such as Ian Barbour (physics) and Günter Altner (biology); the development of liberation theology, particularly by Richard Shaull and Rubem Alves; and the new theological approaches associated with the names of Moltmann and Pannenberg. The list could be extended even further, by taking note of those biblical scholars who double as theologians: Bultmann, von Rad, Eichrodt, Westermann, Käsemann, Conzelmann, and John Austin Baker, to name but a few.(73)

In the light of the discussion in section 2 above, and consideration of space, I will select from the list above only those theologians who deal directly with the question of nature. This is an obvious place to start; it is also a convenient place, because some of the material has already been surveyed.(74) This enables me to cover most of the theological ground of the sixties which is relevant to my concern in this section, with particular reference to the work of Tillich, Bultmann and Moltmann. I am obliged to deal with process theology

as well because it figures prominently in the Church and Society discussions. I defer the detailed discussion to Chapters Two and Four.(75) Teilhard de Chardin was also an influential figure, and some claim that his thought provides a basis for environmental concern.(76) I will deal with his thought very briefly below, as a specially relevant interest. Finally, I must survey the work of the biblical theologians, if only briefly. In Chapter Two below, I will deal with new approaches to biblical theology, associated with the work of Claus Westermann in the sixties (and subsequently), and the work of Odil Hannes Steck in the seventies; their approaches make specific attempts to restore nature to the considerations of biblical theology.(77) In this section, I will briefly describe the approaches of two Old Testament scholars, Gerhard von Rad and Walther Eichrodt; they have written substantial and standard theologies of the Old Testament, and exerted considerable influence on biblical and theological scholarship during the sixties.

This leaves me with the three major positions (Tillich, Bultmann and Moltmann) and two areas of specialist interest to be described briefly. The other major theological approach of the sixties which deals directly with the place of nature in theological discourse, Karl Barth's, is the subject of lengthy debate in Chapter Two below.

The survey is undertaken in four subsections: one for each of the three major positions, and one subsection which deals with the two special interests. The subsections are

(i) The ontological approach - Paul Tillich
(ii) The existentialist approach - Rudolf Bultmann;
(iii) The eschatological approach - Jürgen Moltmann; and
(iv) Two other approaches - Teilhard de Chardin, and Old Testament Theology.

(i) The ontological approach - Paul Tillich

Tillich starts with the real world and the features and structures of human existence within it. A number of existential questions arise from the experience of life, and these may be seen as features of a larger human situation. They are then explored through the Christian tradition and 'correlated' with the multidisciplinary human reflection on experience of life, to give theological answers to these existential questions. The only guarantee that some such correlation is possible between the knowledge that the arts and sciences can give of the human situation, and the Christian theological tradition as a potential

resource for answers to these questions, is that there is some underlying reality linking the human situation and the divine Word, and some correspondence between thought and being so that the way we think about things matches (in some sense) the way they really are.

Tillich speaks of three basic 'dimensions' of life: the inorganic, the organic, and the spiritual, and all but the first of these incorporates several other dimensions.(78) These are the dimensions of life in which its ambiguity is seen and in which it strives for unambiguous life and self-transcendence.(79)

Tillich discusses the self-integration of life and its ambiguities; the self-creativity of life and its ambiguities; and the self-transcendence of life with its ambiguities. These three 'functions of life' are each dependent on the basic polarities of being: self-integration on the polarity of individualisation and participation, self-creation on the polarity of dynamics and form, and self-transcendence on the polarity of freedom and destiny. Because of these polarities, they

> 'unite elements of self-identity with elements of self-alteration. But this unity is threatened by existential estrangement, which divides life in one or the other direction, thus disrupting the unity. To the degree in which this disruption is real, self-integration is countered by disintegration, self-creation is countered by destruction, self-transcendence is countered by profanisation'.(80)

This means that Tillich's system can give a theological description of what is going on in the ecological crisis. The tension which characterises the polarity of man's essential being has been released, so that without its appropriate counter-balance each aspect of human existence (inorganic, organic, and spiritual) becomes distorted and destroyed. In the instance of the ecological crisis, it is the polarity between freedom and destiny that has been unbalanced, since the exercise of human freedom has failed to take account of the limitations (the constraints imposed by the regularities of the cosmos) within which this freedom is to be exercised.

Ability to give a theological description is one matter, but it is another matter to make a constructive theological response to the environmental crisis and the problem of nature in theology. Here Tillich provides a foundation which may be tested. In his discussion of the three basic dimensions of life, he states that

> 'the inorganic has a preferred position among the dimensions in so far as it is the first condition for the actualisation of every dimension. This is why all realms of being would dissolve were the basic condition provided by the constellation of inorganic structures to disappear. Biblically speaking: "You return to the ground, for out of it you were taken" (Genesis 3:19)' (81).

The inorganic is a precondition for the organic and the spiritual. Tillich therefore comments that

> 'The religious significance of the inorganic is immense, but it is rarely considered by theology. In most theological discussions the general term "nature" covers all particular dimensions of the "natural". This is one of the reasons why the quantitatively overwhelming realm of the inorganic has had such a strong anti-religious impact on many people in the ancient and the modern worlds. A "theology of the inorganic" is lacking. According to the principle of the multi-dimensional unity of life, it has to be included in the ... discussion of life processes and their ambiguity.'(82)

This is a statement of good intention on Tillich's part. However, the main focus of his 'correlation' was with the human sciences of psychology, philosophy, sociology, and history. So the problem of the inorganic was not given substantial treatment, even though he recognised the need for such treatment in principle.

Does his system allow for an ecological theology? It has been argued that it does.(83) There are three elements in Tillich's theology which may give grounds for a theology of the environment.

First is his reaffirmation of the goodness and worth of the entire creation, including the material. This is clear from his acknowledgement of the fundamental importance of the inorganic (noted above). The inorganic is important because it is the precondition for life in general and human life in particular, and this is an instrumental importance. But in his discussion of 'originating creativity', Tillich states that

> 'God as creator is equally near the material and the spiritual',

thereby implying that there can be no theological justification for human arrogance towards or exploitation of other creatures; the ontological distinction of humanity does not imply, of itself, a distinction in value before God.(84)

Second, is the human capacity for self-actualisation in freedom. This has both positive and negative implications in the consideration of environmental ethics. Positively, it enables the transformation

of human attitudes and life-styles, and new hope for the world through the exercise of genuine human creative genius. Negatively, it may be associated with the threat of further estrangement and distortion of human capabilities, and the attendant risk of the destruction of the natural order. Tillich balances in favour of the positive: he does not deny the depth of human sinfulness, but he does deny the necessity and inevitability of environmental catastrophe.(85)

Third, and finally, matter too may participate in the unambiguous life symbolised in his system by 'Eternal Life', and this is based on an ecological perception of reality. Thus he sees

> 'essentialisation or elevation of the positive into Eternal Life as a matter of universal participation: in the essence of the least actualised individual, the essences of other individuals and, indirectly, of all beings, are present... Eternal blessedness is also attributed to those who participate in the Divine life, not to man only, but to everything that is. The symbol of a "new heaven and a new earth" indicates the universality of the blessedness of the fulfilled Kingdom of God.'(86)

In this way, matter has a place in theological discourse relating to the new creation as well as in that of creation and of Fall.

Thus Tillich's ontological approach seems able to provide a sound theological basis for environmental concern.(87) As mentioned above, Tillich's correlation focussed more upon the human sciences than the natural, so his theology of the inorganic (and of that aspect of the organic which pertains to the ecological crisis) remained inchoate in his work. The final volume of his Systematic Theology was published in 1963, and he died in 1965, before the environmental crisis had really become a theological issue. So it was left to others to develop appropriate theological responses on the basis of an ontological approach to theology.

One type of ontological response has figured prominently in the Church and Society discussions, namely the process theology based on the metaphysic of Alfred North Whitehead.(88) Another ontological response has been formulated by John Macquarrie, who speaks of an 'organic model' of God in his relationship to the world. He argues that the traditional 'monarchical model' of that relationship led to ecological irresponsibility and that the organic model is more appropriate theologically and environmentally.(89) In a later paper, he speaks of God as the (Aristotelian) 'form' of the world, the 'meaning' of the world, and the (Heideggerian) 'being' of the world's

beings.(90) Such an approach, together with, say, Heidegger's philosophical discussion of technology, might fruitfully serve as a theological resource for an ontologically-based ecological theology.(91)

The ontological approach to theology therefore seems to have good potential for responding to the environmental crisis. I turn now to another approach, which does not enjoy the same measure of success.

(ii) The existentialist approach — Rudolf Bultmann

Bultmann's theology concentrates on the historical dimension of human existence. It may be described as 'existential', if that term is reserved for theologies which share four main features: they are, first, the view that the theological statements are only meaningful, if they say something directly to human existence; second, such statements must address one's own personal existence in the present (at the level of self-understanding, decision-making, action and response, inter alia); third, the self thus addressed is seen primarily in historical (geschichtlich) rather than natural terms, which means that present existence is constituted by historical events, responses and decisions; and finally, an 'existentialist' approach makes the historicity of the self into the primary domain of history, because history (Historie) is existentially insignificant until it impinges upon an individual's present existence and helps inform the context of decision-making for the present. Bultmann's approach, and the hermeneutic he champions, are 'existentialist' in this sense. (82)

I have introduced the distinction between Historie and Geschichte into the summary definition of 'existentialist' above, because the distinction is important in Bultmann's theology but is masked by the fact that the English language has only one word 'history' to convey both meanings. The noun Historie designates history in the ordinary sense, including the histories of people and nations and of the evolutionary processes of nature. It is an academic discipline — rational knowledge which seeks the assimilation of data, the imposition of an interpretive pattern, and a cognitive understanding of the past. The noun Geschichte derives from the verb geschehen and designates the history of becoming and therefore of freedom, the capacity for self-actualisation and self-transcendence. Bultmann often defines man as Sein-Können, aptitude for being: Man is not 'being', he is aptitude for being, ability to become what he is not, to be torn from himself in order to receive

new being. In this sense, man is Geschichtlichkeit.(93)

This means that nature, all things flowing and changing and developing (πάντα ῥεῖ) has no history in the sense of Geschichte. As a seed grows into a plant, so nature already is what it will be in the future after its many metamorphoses — nature. Physical and chemical transformations in a body, the continual flux of the cosmos, the growth of living things, the evolution of species and humanity (as determined by biological factors) do not figure as Geschichte. They are bound to and take place within the regularities of natural existence, without self-transcendence. It is only human freedom which can surpass this determinism and become the subject of Geschichte. Thus Bultmann may define man as Entscheidung (decision), free response to the encounters of human existence.(94) Thus history becomes the realm of self-hood. And

> 'man, if he rightly understands himself, differentiates himself from nature. When he observes nature, he perceives there something objective which is not himself. When he turns his attention to history, however, he must admit himself to be a part of history; he is considering a living complex of events in which he is essentially involved.' (95)

The implications for the understanding of the doctrine of creation are clear. It is in existential Geschichte and not in the realm of nature that God is known as the creator and the source of new creation.

This may be seen as one of the implications of the existentialist approach, as described by the four characteristics listed above. Bultmann went further; he claimed that it was a feature of biblical thought in contrast to that of Greek philosophy. For the Greeks, nature was the dominant category. The view of history was obscured because the meaning of human life and of the world was seen as inherent in nature and its relationships, and man became an object of natural knowledge. This is not the biblical view, which makes Geschichte the dominant category. God reveals himself in history rather than in nature, and man finds himself and his place over against nature and with a history given him by God.(96) Thus the distinction between nature and history may be firmly established and rigidly maintained theologically.(97) It is then only a short step to a negative assessment of the world of nature and a licence for man to act as he chooses without reference to the wellbeing and maintenance of the natural world, though Bultmann did not take this step himself.(98)

This sharp distinction between nature and history makes it difficult for Bultmann's approach to provide a theological foundation for response to the ecological crisis: the logic of his position leads him away from areas of exploration which may help in the theological task. This may be seen in his discussion of human fallenness and the new creation: God meets man in the personal encounter of historical existence, and not in the realms of nature or Historie.(99) In his fallenness and because of it, man is always tempted to turn toward the creation and away from the creator. One of the features of the new creation in Christ, as Bultmann expounds it, is that it means an existential reversal of the decision for the creation rather than for the creator. God's eschatological act of new creation

> 'does not consist in a transformation of nature, but in the fact that "this" world, which has gained its character through men who have succumbed to evil, is finished for the one who by faith in the word spoken by God in Jesus Christ has become a new creature and has found freedom .. In this sense Christ has subdued both nature and history'.(100)

Both now and eschatologically, the natural world is what man turns from in order to turn to God. Nature per se, and the quality and habitability of the world bequeathed to future generations, do not matter theologically.

In fact

> 'to speak of responsibility before God "in the last judgement" means neither responsibility for the world nor for the future, but the responsibility of a single individual for himself.'(101)

This means that the only theological basis for environmental concern is the acceptance of the environmental situation as it presents itself to historical existence, working within the constraints of that situation on the basis of the Christian's encounter with God. But it is the encounter which matters; any benefit to or destruction of the environment is beyond theological consideration.

The environmental crisis is posing questions that Bultmann's approach excludes from theological discussion. Nature is not a subject of theological discourse, because God cannot be known in nature but only in human history; nature has no ultimate importance, and all that matters for the present is the relationship between man and God which, by implication, turns away from the created world; the difference between environmental care and exploitation is beyond the scope of theological discourse; the environmental crisis addresses the future of the human species, but Bultmann's concern is with the immediate present

of the existential self,; and his concentration on the present inclines to the acceptance of the environmental status quo and away from the need to discuss or provide any theological basis for a long-term environmental ethic.

Bultmann's approach is certainly a subtle, careful, and very fruitful approach to the articulation of theology and some of its fundamental problems.(102) It would be foolhardy for me to state that his position cannot possibly respond to the environmental crisis. But it is clear from my outline of his approach that its main concerns are far removed from the issues raised by the crisis, and that it would require a major overhaul of his system and the development of new categories before a Bultmannian ecological theology could be formulated. I now turn to one of Bultmann's critics.

(iii) The eschatological approach — Jürgen Moltmann.

Moltmann started to come to prominence in the sixties, with the publication of Theology of Hope; this book contained some sharp criticisms of Bultmann's approach and also marked out a distinctively new theological position.(103) He has continued to develop this new perspective into the seventies and, unlike Tillich and Bultmann, has been able to develop this position in partial response to the ecological crisis. Thus, I may describe his approach in the sixties, and show how he applied it to the crisis in his essay 'Creation as an Open System'.(104)

Moltmann takes the eschatological character of Christianity with 'utter seriousness', and he is concerned to relate the eschatological vision to contemporary social and political problems.(105). This approach contrasts fundamentally with Bultmann's, thus:

> 'Bultmann's approach looks for meaning within the self despite the plight of the world. New creation has already arrived within the faithful self whatever the world looks like. Moltmann's approach searches for meaning in the future action of God that makes living in the world the way it is tolerable. New creation is therefore to be made real by actions that cut across the negativities of the present.' (106)

In Moltmann's early theology, 'the world the way it is' focussed upon the social and political realities and experience, and this lent itself to the development of a 'theology of revolution'.(107) This focus did not preclude consideration of any doctrine of creation, however, because it is partly grounded in Moltmann's interpretation

of the creatio ex nihilo.

> 'A creation out of nothingness is nevertheless simultaneously a creation within a sea of nothingness. A creation out of chaos is an order of life within chaos. Therefore creation is an open creation, open for its own destruction as well as its redemption and new creation ... We cannot understand it therefore as the golden state of affairs before history, instead we must conceive it as the laying of the foundation and the inauguration of history. The process is inaugurated. The field of destructive and constructive possibilities is laid out.' (108)

This means that the future cannot function as a source of security in the social and political realms, or, as he later develops his thought, in the ecological realm. There is no point in looking to the future for a return to some hypothetical pre-creation perfection or pre-temporal bliss. Nevertheless, one may look to the future with hope: the hope which looks for God's act of new creation (prefigured in Jesus' resurrection) in which he will make all things new.(109) The early Moltmann translated this into social and political terms. Hope is to be interpreted constructively and sacramentally, forbidding humanity to wait passively for the dawn of a better day while patiently enduring the darkness of the present, but creating instead a tension between what is and what ought to be. This tension should generate and impel social and political action. It may be charged against Moltmann, however, that he gave no definite criteria for the kinds of action which might be regarded as valid from this theological perspective.(110)

Moltmann's attention to the doctrine of creation provides an obvious starting-point for new development and new interpretation of that doctrine in response to the ecological crisis. In his later essay 'Creation as an Open System', there is the same gap between what is and what ought to be:

> 'Belief in creation repeats the judgement of the Creator over his creation: "Behold, it was the very good". Unfortunately man cannot, like his Creator, rest at this point. For experience tells him, "Behold, it is unfortunately not very good".' (111)

He reaffirms his earlier interpretation of creation:

> 'Creatio ex nihilo is therefore creatio in nihilo as well and is consequently creation that is threatened, and only protected to a limited degree against that threat.' (112)

The environmental crisis and the threat of nuclear holocaust may be acknowledged as real threats, posed by 'the sea of nothingness' and arising from within the 'field of destructive and constructive possibilities' laid out at the initial creation. As in the The ology of Hope, man's fallenness is epitomised by the sin of hopelessness, which believes that the constraints on social and natural life associated with the field of possibilities describe the negative limits of human existence; then, in the face of the social turmoil and environmental problems which appear at the boundaries, hopelessness becomes the double despair that gives up on God and on humanity and abandons the promise of the new creation.(113). The theological response appropriate to the crisis, from Moltmann's perspective, is therefore to give some content to the promise of the'new creation' as it applies to the present created world, and which will generate the appropriate tension and action for the realisation of that eschatological goal in the natural-human-historical world.

He attempts to do this in 'Creation as an Open System', which focusses upon the theological unity of creation through history to new creation, and on the new metaphor of the 'open system'. He criticises the theological method which begins with the description of the creation, arrives at the idea of the world's redemption, and sees redemption as the restoration of the primal goodness (restitutio in integrum). History between creation and redemption then becomes the history of the Fall, and can bring nothing new except the ageing and increasing deterioration of the earth, since only redemption will restore creation. Instead, Moltmann seeks an eschatological understanding of creation, in which eschatology continues to be understood in the light of creation, and creation is understood afresh in the light of eschatology.(114) This means that

> 'we must have in view the total process of divine creative activity. "Creation" as the quintessence of God's creative activity comprehends creation at the beginning, the creation of history, and the creation of the End-Time'.(115)

This safeguards the continuity and unity of the divine creative activity. It also changes the position of man with regard to creation;

> 'He no longer merely confronts God's non human creation as its lord, the creature who was made in the image of God; together with all other things, he also stands in the Becoming of the still open, uncompleted process of creation. Creation is not then a factum but a fieri. This leads to a new interpretation of

> man's destiny in creation; and "subdue the earth" cannot be this destiny's final word.'(116)

That is, an eschatological understanding of creation relativises the concept of human dominion. What this means for environmental ethics may be described in terms of 'open systems'.

By the openness of a system, Moltmann means: first, that it has different possibilities of alteration; second, that its future behaviour is not totally determined by its previous behaviour; third that it can communicate with other systems; and finally, that the terminal condition of the system differs from its initial condition. (117) Sin and slavery, at both individual and social levels, can be understood as the self-closing of open systems against their time and their potentialities, which leads ultimately to self-isolation and death. Thus the fallenness and hopelessness of man can also be expressed in terms of the closing of his individual and social systems. On the other hand, salvation in history may be understood as the opening of a 'closed system' by divine grace; the closed or isolated person is freed for liberty and for his own future, and the closed society is able to look upon the future as one of self-transformation.(118)

Creation at the beginning is a system open for time and potentiality; God's creative acts in history are interpreted as the opening up within time of closed systems; but what of the eschatological consummation? It will mean the openness par excellence of all life systems, because the unlimited fullness of the divine potentiality dwells in the new creation (Revelation 21:3). There will therefore be time and history, future and possibility, but they will not be ambiguous as they are now. Instead of timeless eternity,

> 'we would do better to talk about eternal time, and instead of the end of history we would do better to speak of the end of pre-history and the beginning of the eternal history of God, man, and nature. We must then ... think of change without transience, time without the past, and life without death. But it is difficult to do this in the history of life and death, growth and decay, because all our concepts are stamped by these experiences.'(119)

Nevertheless, Moltman continues,

> 'both the structure of the natural system and the human experience of history point in this direction.(120)

Moltmann's metaphor of the open system is therefore as versatile as it is appealing. It provides an interpretation of the new creation, and provides criteria and goals for the human contribution to that creation according to the divine creative and eschatological purpose. It is a metaphor of communication and cooperation, which gives a new look to the dominium terrae text:

> 'Genesis 1:28 will have to be interpreted in an entirely new way: not "subdue the earth" but "free the earth through fellowship with it".'(122)

Nature is a coherent ecological system which includes the human species and has its own subjectivity. Man's goal in nature is to preserve its openness, and nature shows man the way:

> 'Investigations into the ecology of survival on the sub-human level have shown that ... symbioses between competing organisms have a far greater chance of survival than conflicts of competing organisms. The subject-object relationship of man to nature, and the pattern of domination and exploitation, do not lead to any symbiosis between human and non-human systems that would be capable of survival; they lead to the silencing of nature and to the ecological death of both nature and man.'(122)

Thus the metaphor of the open system, in conjunction with Moltmann's interpretation of the creatio ex nihilo and the eschatological understanding of creation, enable him to develop his theological position of the sixties and outline an ecological theology and an environmental ethic.

My survey of the discussions in the Church and Society programme, in Chapter Three below, will show that these discussions began to incorporate an eschatological dimension — in fact, it is necessary to describe one of the main theological approaches represented there as a 'theology of hope'. This is not meant to imply that this approach finds its origin and inspiration in Moltmann's thought of the sixties or the seventies (after all, the environmental crisis raises the question of survival for the human species, a question which has eschatological overtones). But it does indicate that some eschatological understanding of the doctrine of creation may function as a starting-point for an ecological theology and be necessary for its development.

With the exception of Barth's thought, which is discussed more fully in Chapter Two below, this completes my brief survey of the main theological approaches of the sixties. The next subsection will deal with two other influences on the religious thought of the sixties, and

so complete the present section.

(iv) Two other approaches — Teilhard de Chardin, and Old Testament Theology.

The theology of Teilhard de Chardin, and the Tendenz of Old Testament theology in the sixties, will be discussed separately.

(a) Teilhard de Chardin

Pierre Teilhard de Chardin published over 150 scientific articles on the basis of his researches in geology and palaeontology, and his theology attempts to synthesise his scientific knowledge of the world's structure and processes with his Christian commitment as a Jesuit priest. (123).

In the Phenomenon of Man this becomes a synthesis of the material and the physical with the world of mind and spirit; of the past with the future; and of variety with unity, the many with the one. He uses the category of evolution, and extends it beyond its usual application in biology to speak of cosmogenesis and noogenesis (the gradual evolution of mind and mental properties) and ultimately Christogenesis. The latter concept is related to the doctrine of the mystical body of Christ, which all mankind is called to form. With the noosphere in the full spate of human existence, itself evolved from and developed within the biosphere, humanity is now in the early stages of the Christosphere; and Teilhard sees Christogenesis as the evolutionary process of development towards the hyperpersonal psychosocial organisation of humanity in Christ, point Omega.(124) Evolution, he says

> 'has come to infuse new blood, so to speak, into the perspectives and aspirations of Christianity';

and he then asks

> 'in return, is not the Christian faith destined, is it not preparing, to save and even to take the place of evolution?'(125)

This bold extrapolation from scientific evidence and evolutionary theory to theology seems to make Teilhard's work a valuable potential resource for ecological theology, with a built-in theology of nature.(126) The central concepts of the crisis may be included in his thought, as he speaks of the two possible ways of approaching the critical point in the Christogenic process: one, which will result in an 'ecstasy in concord'; the other, in the discordant.

> 'death of the materially exhausted planet; the split of the noosphere, divided on the form given to its unity; and simultaneously ... the liberation of that percentage of the universe which, across time, space and evil, will have succeeded in laboriously synthesising itself to the very end.' (127)

However, Teilhard's theological evaluation of nature is negative. It is the stuff with which human progress feeds its further scientific, technological, and evolutionary advance. It is instrumental in furthering Christogenesis, but it has no other value at all. Humanity and its progress is the important theological consideration, and all scientific investigation and technological enterprise is to be directed towards this aim.(128) If all goes well,

> 'nothing could stop man in his advance to social unification, towards the development of machinery and automation (liberators of the spirit), towards "trying all" and "thinking all" right to the very end.' (129)

In his discussion of 'the ultimate earth', he speaks of

> 'the wholesale internal introversion upon itself of the noosphere, which has simultaneously reached the uttermost limit of its complexity and its centrality',

and the detachment of the mind,

> 'fulfilled at last, from its material matrix, so that it will henceforth rest with all its weight on God-Omega';

this is the critical point

> 'of maturation and escape'.(130)

It is clear from this brief account of Teilhard's thought that he espouses the very attitude to nature that Lynn White, Arnold Toynbee, and F. Fraser Darling claim has helped precipitate the environmental crisis. Teilhard de Chardin is part of the problem and not part of the solution.(131)

(b) Old Testament scholarship

The traditional locus for the discussion of nature in theology has been the doctrine of creation, and most of the biblical texts relating to the exposition of this doctrine are found in the Old Testament. The discussion there is subject to expansion and further development in the New Testament, in the light of Christ's revelation, but the basic discussion takes place in the Old Testament. There it is established that nature is neither divine (as the pantheist maintains) nor evil (Gnostic belief) but owes its origin to God

(Genesis 1 and 2). My present question is, how has Old Testament scholarship and theology interpreted the Genesis sagas and the theological problem of the creation? I answer this by examining the works of two major Old Testament scholars, Gerhard von Rad and Walther Eichrodt, both of whom wrote standard theologies of the Old Testament and who therefore exercised considerable theological influence on the thought of the sixties.(132)

Gerhard von Rad's approach to all the Old Testament material relating to creation is dominated by his view that

> 'the Yahwistic faith of the Old Testament is a faith based on the notion of election and therefore primarily concerned with salvation'.(133)

His view is that the work of the Old Testament writers and editors is dominated and shaped by the twin themes of God's action in self-revelation and in salvation-history. Theological reflection on creation belongs to the second theme. Israel's doctrine of creation is a late development, which extends their understanding of Yahweh as Saviour by the use of earlier beliefs and the 'creation' of myths of the surrounding nations, and which speaks of creation as one of God's saving acts in history. For example,

> 'Deutero-Isaiah obviously sees a saving act in creation itself',

and

> 'this pushing back of the beginning of the saving history [to the creation] was only possible because the creation itself was regarded as a saving work of Yahweh's'.(134)

God's history with his people (election) expanded from the story of the creation of the people in the exodus and their entry to the Promised Land, to include the stories of the patriarchs, and the doctrine of creation was added to supply the theological base necessary to this expansion.(135) Thus the doctrine of creation belongs, theologically, to the theme of God's action in salvation-history. It is interpreted in historical categories, and has lost contact with the natural world.

The 'cultic credo' of Deuteronomy 26:5 - 9 and the theme of the Israelite confession of faith which it epitomises provide the focus for von Rad's Old Testament Theology. Walther Eichrodt focusses instead on the centrality of the covenant. This is an oversimplification which is not fair to either writer; but it indicates nevertheless that both their treatments of creation refer primarily to God's

history with his people — with the natural world a poor second. This may be seen in Eichrodt's chapter on 'Cosmology and Creation'.(136) There, he states that

> '[the] understanding of the creation as the work of the covenant God ... endued the will of the Creator from the start with the characteristics of personal and spiritual activity, and of moral purpose'.(137)

This activity and purpose are manifested in God's covenant history with his people; from the very first, the creation is

> 'integrated into a spiritual process in which each individual event acquires its value from the overall meaning of the whole;that is to say, into history'.(138)

Quoting Isaiah 45:18f, he states that.

> 'Yahweh's opposition to all the haphazard tyranny of the powers of Chaos is here made utterly plain; his idea in creation is the salvation of mankind, which he brings about by his purposeful government.'(139)

He compares the Israelite idea of creation with the Babylonian creation epic (enuma eliš) and its theology of the God-world relationship. The Babylonian concept of God's relationship to the world is bogged down in naturalism; but Israel's experience of the covenant God showed that he was quite different from the deities of any of the other nations, and enabled Israel to reject the naturalistic (and other mythical, pantheistic and deistic) conceptions of God's relationship to the world. This is the unique element in Israel's theology of creation. The world is indissolubly connected to God, but God is free and sovereign with regard to the world, makes himself known in personal and moral action, and can therefore be experienced as a spiritual personality independent of nature.(140).

It is evident from this account that these two major Old Testament scholars, whose works helped shape biblical and theological scholarship in the sixties, were concerned primarily with man and his salvation, and saw the doctrine of creation in terms of the human history with God rather than in terms of the natural world. This means that the main thrust of Old Testament scholarship in the sixties was not prepared to deal adequately with the issues raised by the ecological crisis, unless they could be formulated in terms of salvation-history.

This section has surveyed some of the main trends in religious thought during the sixties, with an eye to assessing their capacity to

respond theologically to the environmental crisis. The results are mixed. Some theological approaches seemed to be unable to address the situation or to speak of nature theologically; others, such as the ontological approach (Tillich, Macquarrie, and process theology) and Moltmann's eschatological approach, seemed to have the resources necessary for the task. This positive note is important. Section 2 showed that there was a prima facie case for the development of an ecological theology. There were some writers who questioned whether an ecological theology could still be a distinctively Christian theology; this question lies behind Toynbee's and White's calls to return to pantheism.(141) The survey undertaken in this section has shown that the existence of a Christian ecological theology is certainly plausible. That is sufficient for the present discussion, and the issues will be debated at greater length in Chapter Two.

This chapter has shown that the ecological crisis affects theological discourse at several levels. The next section shows how this thesis will attempt its examination of the effects of the crisis on the theological approaches evident in recent ecumenical discussion.

4. The future course of the thesis.

The preceding sections have served to show that the ecological crisis has theological overtones and implications. Some expressions have been used there, with little or no explanation of their meanings or their interrelationships; expressions such as 'ecological theology', 'theology of nature', 'theological response to the environmental crisis', and the 'doctrine of creation'. None of them is self-explanatory. There are some questions about the expression 'ecological theology': Does this conjunction of adjective and noun result in a meaningful expression? Or, to put it another way, how may theology be 'ecological'? Is there any difference between a 'theology of nature' and an ecological theology? How do they differ from (Christian) environmental ethics? Since the expression 'ecological theology' is not a standard term of theological discourse, and since to my knowledge no one has yet attempted a definition from the viewpoint of systematic theology, I will make the attempt to canvass the issues and define the term in my Chapter Two. That chapter will help show what may be involved in the enterprise of writing an ecological theology, how the task may be approached, and how such a theology may relate to the traditional concerns of theology. Thus Chapter Two provides the formal justification for this thesis and my candidacy for a degree in systematic theology.

In Chapter Three, I proceed to the second part of my thesis, namely the analysis of the discussions undertaken in the Church and Society programme of the World Council of Churches from 1966 to 1979, with a view to studying the approaches to ecological theology evident therein. Four main approaches emerge from this survey: an 'emancipatory' approach, which sees nature as a hostile force from which man is to be liberated by means of his science and technology; a 'theology of hope' which adds an eschatological dimension to the discussion of nature and the doctrine of creation; a process theology approach; and another approach, informed by the Orthodox tradition. The main features of these four approaches, their strengths and weaknesses and their ethical implications inasmuch as they can be readily discerned, will be examined in turn in Chapter Four. A brief final chapter will then state my conclusions and my theological evaluation of the Church and Society programme.

CHAPTER TWO: The concept of an 'ecological theology'.

The last chapter sketched the history of the so-called 'ecological crisis' during the decades of the sixties and seventies, by way of introduction to the central theme of my thesis, ecological theology. It also gave a brief sketch of the main features of Western theology during that period, and stated some of the theological issues associated with the discussions of environmental questions. The larger questions, as to whether systematic theology could or should respond to the crisis, and if so, how it may respond, have been deferred to this present chapter. My aim here is to define the term 'ecological theology' and to legitimate its claim to fall within the purview of systematic theology. This is done in four stages. The first section defines the necessary terms and introduces the question: Whether ecological theology may be part of systematic theology, or not? The second section introduces two objections to an affirmative answer, and these objections are then debated in the third section. The concluding section settles the question in the affirmative.

1. Utrem: the question

This section defines the central term of the thesis and poses the fundamental question, whether the noun 'theology' may be qualified by the adjective 'ecological' without loss of meaning. The discussion of this question occupies the remainder of this chapter.

The word 'ecology' was coined by the German biologist Ernst Haeckel in the eighteen-seventies, though the special study of the ecologies of species was not firmly established until the nineteen-thirties. The word was a technical and scholarly term in the sole possession of the life-sciences, until the ecological crisis of the sixties and seventies brought it into wider circulation. Technically ecology may be defined as:

> 'the study of the interrelationships between organisms and their environment and each other.' (1)

Such study differentiates between the relationships of an individual organism with its environment (autecology) and the relationship of a community of organisms or a species with its environment

(synecology), (2). But what relevance may such a study have to systematic theology? It is not at all straightforward or self-evident that 'ecological theology' is a meaningful expression. (3) Several possible meanings of the expression will now be eliminated, in order to prepare the way for the formal definition.

The impetus for the study of ecological theology comes from a concern about the world as it is known to science and affected by technology — the 'natural' world. Nevertheless, 'ecological theology' is not a branch of natural theology if 'natural theology' is taken as the antithesis of 'revealed theology'. (4) Such an ecological theology would use the scientific insights about the ecological unity and interdependence of the universe as data for its theological task, without reference to the testimony of revelation. That is a constriction upon my study of ecological theology and on my understanding and use of the term.

The term is not a synonym for 'theology of nature'. The latter is an ambiguous term, but its most straightforward interpretation in this context is: theological discourse about the natural world which attempts to answer questions about the place, meaning and purpose of the world of nature in God's overall plan in creation and redemption. (5) Such theological reflection is extremely important in attempts at dialogue between scientists and theologians, as both seek a common and coherent interpretation of the reality which meets them in their experience of the natural world. (6) But in the expression 'theology of nature', the second noun refers to the universe apart from man, as the object of scientific observation and technological control, and this exclusion of humanity from nature presents complex problems of definition. (7) Since I want the expression 'ecological theology' to accommodate all the information about the ecological structure and order of the universe, including the relationship of the human species to its environment (human synecology), I must go further than the expression 'theology of nature'. (8)

'Ecological' does not refer to the method of doing theology, or describe the structure of systematic theology. The various domains of systematic theological discourse are interrelated in diverse and complex ways, and none can be expounded in total isolation since the theological formulations and developments in one domain pre-suppose and in their turn influence those of the other domains. One may

therefore speak of an ecological method and structure within systematic theology.(9) As I use the term, however, the adjective refers more to the content and the language than to the method and the structure of the theology itself.

I also wish to distinguish ecological theology from the necessary and ongoing task of Christian environmental ethics.(10). I am using 'theology' to mean Christian systematic theology, a discipline which operates according to the canons of discourse presently accepted by the academic community of systematic theologians and congruent with the particular traditions it has inherited from preceding generations of systematic theologians. In the light of Chapter One above, it is evident that ecological theology has gained some impetus from Christian ethical concern about the environment, and is undertaken with an eye to its ethical implications. Nevertheless in this thesis 'theology' is always used with strict reference to Christian systematic theology.

The examples so far have shown what ecological theology is not; but in so distinguishing them, I have given some hints towards the definition of what it is. It is not a branch of natural theology, but it attempts to relate ecological (and scientific) insight about the natural world to theological discourse. It is not a theology of nature, because human synecology is part of its reference. It is theology, systematically undertaken and developed, which takes its place in the intricate complex of the various theological domains. I will now give these hints substance by stating my formal definition:

> Ecological theology is theological discourse about the systemic unity of the cosmos, with specific reference to humanity's place in and influence upon it, and which incorporates the provisionally valid insights of the science of ecology and the life, natural, and social sciences generally.

This definition demands some elucidation. The basic debate in this chapter concentrates on whether the use of the phrase 'theological discourse' in the definition is really begging the question. The term 'systemic unity' requires elaboration, and the specific reference to humanity needs to be explained. The reference to the evidence of ecology and the sciences needs to be justified in principle, as does the implied need to refer to human culture in a theology which is ecological.

I will be using the term 'system' and its cognate 'systemic' in their specialised and technical sense, which it has in the compound 'ecosystem', for example. The global ecosystem includes the atmosphere as biosphere and the celestial bodies with their effects upon earth's life. The global ecosystem is itself the interlocking and inter-relationship of the innumerable milieux of individual living organisms. If the ecosystem is reduced to its separable components, then the whole is more than the sum of its parts, for the reduction loses the (ecological) information stored in the network of interrelationships which link the separate components. There is more scientific knowledge of the ecosystem to be gained if the interrelationships are studied with the behaviour of the components. It is therefore possible to study the ecosystem as a system of components linked in a complex of interrelationships; and it is also possible to generalise the ideas involved, and formulate the broader concept of a 'natural system'. The emergence of isomorphic theories and parallel concepts in various natural and social sciences makes such a generalisation possible, and permits the study of systemic (organisational) invariances.(11) This has led to the development of a 'systems philosophy'.(12) I am using the term 'system' in the sense of systems philosophy, though I do not wish to imply that ecological theology is necessarily bound to espouse the terminology and method of systems philosophy.

The global ecosystem depends on factors beyond the globe for its maintenance, such as solar energy input and the tide-influencing gravitation of the moon and the planets. The earth and its life does not form a self-contained systemic unity, but is integrated into the systemic unity of the cosmos. The cosmos is the only self-contained and self-complete systemic unity, and it exhibits a hierarchical structure of celestial subsystems (including that which relates to the earth), each of which influences and is influenced by the others. This is why my definition referred to the systemic unity of the cosmos rather than to the global ecosystem.(13)

The reference to humanity is justified by the need to give direction to the theological discourse about the cosmos, by placing it in the context of the human situation and concern. The ecological crisis refers to life on this planet, and arises from a concern that human activity on earth may jeopardise the survival of some of its

species, including the human species.(14) Ecologically, the human species is an aristocrat, which occupies the summits of food chains and pyramids and is the lord of the living manor. Beneath him are lesser lords on the summits of their own lesser pyramids (tiger, eagle, robin, mole, etc.). But humanity is unique on earth, in its capacity to accumulate and transmit knowledge, and to use that knowledge for its own welfare. The human enterprises of science and technology are manifestations of this capacity, and are also the objects of some environmental misgivings. They are inherent in humanity's ecological aristocracy and influence upon the earth and, through space exploration, beyond its immediate confines. The reference to humanity in the definition of ecological theology is therefore justified by the fact that this theological reflection on the cosmos is prompted, initially, by the need to respond to a terrestrial situation resulting from human activity. It is a problem of human synecology.(15)

Why, then, the reference to the natural,life, and social sciences? The Scriptures contain information about man and his relationship to his environment, and some biblical theology has attempted to relate this to the contemporary ecological crisis.(16) It can be argued that, in principle, the biblical material says all that theology needs to say. Conversely, it may also be argued that the biblical texts do not envisage the experience and intellectual foundations of a scientifically and technologically moulded modern world, and that they live from experiences and intellectual foundations that are now debased currency - geocentrism providing a case in point. The latter argument makes this issue into one of hermeneutics and apologetics. Even if the biblical material is all that is necessary in principle for ecological theology, however, it is not sufficient in practice, because theology responds to changes and developments in scientific understanding. Scientific insight does not necessarily contradict biblical statements, but it may demonstrate their historical relativity and create a new conceptual framework and perspective within which they are to be interpreted. My reference to the sciences is therefore necessary for methodological clarity (and honesty), for it is the sciences which help inform man about human synecology, the point and manner of his existence in the cosmos.(17) It is also an apologetic necessity, if theological discourse is to be credible to those whose conceptuality is formed by the sciences and

who are aware of what the sciences regard as admissible interpretations of the observable world.(18)

In the definition of ecological theology, I referred to the contemporary insights of the social sciences as well as the natural and life sciences. This reference to human culture is necessary because the human effect upon the environment through science and technology is a phenomenon of human culture. Contemporary science is the fruit of generations of scientists' accumulating, modifying, and transmitting their interpretations, and this is culture in the temporal sense. It is culture in the geographic sense as well, as scientists in different cities and nations collaborate, and disseminate the results of their labours in internationally circulated journals. Science and technology are also culturally relative, as financial constraints upon research and the decisions of governments both affect the type of research undertaken, the information sought, and the technological processes perfected.(19) Therefore, since ecological theology is to concern itself with human synecology, it must concern itself with science, technology, and the phenomena of human culture generally. That is, the subject matter of ecological theology demands reference to human culture, and this is why it is necessary to incorporate the insights of the social sciences into the discourse of ecological theology. Nevertheless, these insights are only secondary for ecological theology, for the cultural dimensions mentioned above presuppose the use and shaping of the environment by man and by every other living being for the purpose of securing the elements necessary for life. The reference to the social sciences themselves is secondary and subordinate to the consideration of human synecology.

So far, I have defined ecological theology and explained the theologically unusual features of my definition, but I have not yet explained the phrase 'theological discourse'; what is the function of the adjective 'theological' in the definition? Its use in this context must be clarified in the discussion of this chapter's central question, whether or not ecological theology as defined above may be part of systematic theology. Stated thus, the question seems to be concerned about what may or may not constitute theological discourse and acceptable theological method (with reference to the sciences in particular). If this were so, the question could be

answered simply and without further ado, according to the personal predilections and professional inclination of the individual theologians to whom it is put.(20) But the question is really about the internal coherence and consistency of my proposed definition of ecological theology; namely, whether scientifically-informed discourse about the cosmos may be theological discourse without contradicting its own nature. For the purpose of brevity, I stated in the introduction to this chapter that it would debate the basic question, whether ecological theology may be part of systematic theology? In fact, the chapter debates the equivalent question:

> Whether discourse about the systemic unity of the cosmos - undertaken with reference to human synecology and the insights of the life, natural, and social sciences - may be theological discourse?

Section 2 argues from a hypothetical Barthian perspective, that the question must be answered in the negative, so to that I now turn.

2. Videtur: two objections from a Barthian perspective.

In both the Old and the New Testaments, as well as in the early controversies with Gnostic and Manichean heresies, the Church has affirmed that discourse about the cosmos is part of the ongoing task of theology. Traditionally, such discourse was undertaken in the context of the doctrine of creation, which dealt with the existence, origin, and structure of the phenomenal universe.(21) The question at issue in this chapter is not whether discourse about the cosmos may be theological, but whether such discourse may be theological if it is informed by scientific insight, and where the boundaries lie between the two questions. This section raises two objections to the internal coherence of my definition of ecological theology and argues, therefore, that scientifically-informed discourse about the cosmos cannot be theological discourse. These objections are hypothetical, and they are raised from a Barthian perspective; they arise from the discussion of 'Man in the Cosmos' in the second part-volume of 'The Doctrine of Creation' in Barth's Church Dogmatics.(22)

There are three reasons for choosing the Barthian perspective. First, Barth has addressed the issue of ecological theology, though in a different context and using different terminology, in that part of the Church Dogmatics mentioned above. So there is a specific reference to work on and a sustained argument to debate.(23) Second, his putative objection is raised on the grounds of theological necessity; it arises from the complex logic of his elaboration of dogmatics, and not from any a priori assumption about the possibility or impossibility of relating scientific insight and information to theological discourse.(24) Third, the hypothetical objections from the Barthian perspective have added significance in their implications, if sustained. The Word of God is the criterion of dogmatics, and all theological discourse must be referred to that Word to check its legitimacy.(25) Therefore, if the objections are upheld, the enterprise of ecological theology is theologically illegitimate, and is to be abandoned, opposed, and repudiated in deference to the prior and overruling claim to obedience of the Word of God.

A Barthian theologian may object to my definition of ecological theology on two grounds, thus:

(i) Theologically, discourse about the cosmos is discourse about man, which lies beyond the legitimate realm of

ecology and the empirical and social sciences, is independent of them and unaffected by their insights; and

(ii) Since ecological theology attempts to relate faith to a world view which is non-theological (because it is scientifically informed), it is necessarily self-contradictory and internally inconsistent.

These objections will now be expounded in turn. The exposition will proceed by drawing together some texts from the pertinent sections of the Church Dogmatics.

(i) First objection.

The first objection has three parts: (a) theological discourse about the cosmos is discourse about man; (b) theological discourse about man is discourse about the man, Jesus; and (c) the exposition of theological anthropology and the conduct of the scientific enterprise are mutually independent.

(a) Man is the key to the theological understanding of the cosmos, because of the incarnation:

> 'We know of man — only of man, but of man from the Word of God — that God Himself wills to have dealings with him and to make him His partner in the history between them; and that at the climax of this history God Himself willed to become and did become what man is — the Creator a creature, this creature, not a stone or plant or animal, but man. Here in man, then, we see what we do not see in the cosmos around him. ... We see here in fact the inner mystery of the relationship between God and His Creature.'(26)

Thus this distinction of the human species sheds light on the cosmos and illuminates its relationship as creature to its creator. Theological discourse about the cosmos must and can only return to this point. Man is the point in the cosmos where the thoughts of its Creator are disclosed. In this disclosure, man represents the whole of the cosmos, since it

> 'has for us no intrinsic light and cannot reveal the divine plan which governs it. It is man in covenant with God who reveals this plan. He does so representatively for the whole cosmos. ... He alone

> sheds light on the cosmos. As he is light, the cosmos also is light. As God's covenant with him is disclosed, the cosmos is shown to be embraced by the same covenant.' (27)

Thus theological discourse about the cosmos must be theological anthropology, since God's revelation about the cosmos has been made in man and not elsewhere, and in man as pars pro toto,

(b) Theological discourse about man is discourse about the man Jesus. The distinction of man which makes him the object of theological anthropology (and which implies that no other creature in the cosmos may be the object of theological discourse) is that only man stands in this uniquely representative relationship before and with God. Thus theological anthropology asks what kind of being is it which stands in this relationship to God. (28) This is a question about human nature as such, about the creaturely essence of man, and is fraught with difficulty because the Word of God shows man as the sinner embroiled in his own self-contradiction. (29) Nevertheless, if

> 'by the Word of God we are denied any capacity of our own to recognise our human nature as such, it is the same Word of God which enables us to know it, in a free demonstration of the free grace of God apart from and against our own capacity.' (30)

That is, human sin and its consequences hide the theological knowledge of the inner reality of human nature from man who seeks that knowledge and is determined by it; but the grace of God is primary and the sin of man secondary. Barth then argues that

> 'the attitude of God to sinful man, in which the order of grace and sin is present and revealed, is primarily and originally His attitude to the man Jesus alone.' (31)

The rest of the passage is then devoted to expounding the following proposition:

> 'The nature of the man Jesus alone is the key to the problem of human nature.' (32)

Thus, the proposition that 'theological discourse about man is discourse about the man, Jesus' has a double reference: to the sin of man, which denies to sinful man any knowledge of his inner reality; and to the grace of God, which allows the inner reality of man to be shown forth in a historical man, the man Jesus.

(c) The exposition of theological anthropology and the conduct of the scientific enterprise are mutually independent. This follows from the theological blindness consequent upon man's sin. The sciences can reveal nothing theologically certain about man, for

> 'if we were referred to a picture of human nature attained or attainable in any other way [than through the man Jesus], we should always have to face the question whether what we think we see and know concerning it is not a delusion, because with our sinful eyes we cannot detect even the corruption of our nature, let alone its intrinsic character, and are therefore condemned to an increasing confusion of the natural with the unnatural, and vice versa.' (33)

The sciences are strictly limited. They can only offer

> 'statements to the effect that man as a phenomenon is to be seen and understood by man according to this or that standpoint and in this or that aspect of his constitution and development, as determined by current knowledge of these facts accessible to human enquiry. ... Where it is simply a question of man as a phenomenon — and exact science as such can go no further -- there can be no perception of man as the creature and covenant-partner of God, and therefore of his true reality and essence, and the task of theological anthropology is thus untouched. Hence we cannot admit that scientific anthropology has already occupied the ground we propose to cover.' (34)

Extensive attention to man as an ecological phenomenon cannot be theological, unless it transgress the limits of scientific discourse. If it does so, it becomes a speculative theory of man and is to be condemned. Its origin is in that 'arid corner' where, at the start of human self-knowledge, man makes the confident assumption that he can perceive some knowledge of his own inner reality. But

> 'we cannot enter that sterile corner, nor can we argue from it. The Christian Church does not belong to that corner. It would cease to be itself if it wished to do so ... There can certainly be no question of theological anthropology being constrained or even able to enter the frame work of an anthropology which has such a different basis. The difference of theological anthropology [i.e. in the Word of God] is its frontier against all speculative anthropologies. And it goes without saying that we must always guard this frontier.' (35)

Hence, in treating man as an ecological phenomenon, the sciences must separate themselves from theology. Conversely, if theology attempts to treat man as an ecological phenomenon, it is false to the

source of its anthropology and thereby surrenders its claim to be a theological anthropology.

The three propositions (a), (b) and (c) together establish the first objection from the Barthian perspective, viz.:

'Theologically, discourse about the cosmos is discourse about man, which lies beyond the scope and legitimate purview of ecology and the empirical and social sciences, is independent of them and unaffected by their insights.'

(ii) Second objection.

The second objection states that any attempt to relate faith to a non-theological world-view must necessarily result in self-contradiction and internal inconsistency. This objection is drawn from the observation of the Church's history and the silent example of Holy Scripture. Barth notes that Holy Scripture does not propound a world-view which is theologically binding upon belief, but has always made more or less critical use of alien views.(36) Faith is non-committal in its relation to existing world views; but when

> 'we think we detect an absolute union of faith with this or that world-view, we are not really dealing with faith at all, but with a partial deviation from faith such as is always possible in the life of the Church and of individuals.'(37)

He acknowledges that it has been taken as axiomatic, throughout the history of the Church, that there is

> 'at least a partial obligation towards dominant world-views'.(38)

Nevertheless,

> 'insofar as faith is true to itself, i.e. to its object, and in so far as its confession is pure, its association with this or that world-view will always bear the marks of the contradiction between the underlying confession and the principles of the system with which it is conjoined. If there can be no confession of the faith without a cosmological presupposition or consequence (however tacit its acknowledgement), faith can always guard itself against the autonomy of its alien associate. Thus even in the conjunction of faith with alien world-views its opposition to the latter will always find expression.' (39)

Therefore, since ecological theology attempts to marry theology and faith to a world-view based on scientific insight (including the insights of human synecology), it will founder ultimately in self-

contradiction and incoherence. This establishes the second objection.

In this section, I have cited material from Barth's Church Dogmatics to show that my definition of ecological theology may be meaningless when viewed from a Barthian perspective; the implication being that ecological theology therefore cannot be systematic theology. The objections are to be debated in the next section.

3. Sed contra: exploring the Barthian path.

Throughout the Church Dogmatics, Barth challenges the assumption that one theological choice is as good as another. This means that the objections lodged in section 2 cannot be dismissed by a theological statement that says, in effect, I do not accept these objections or the assumptions on which they are based, so let us go our separate theological ways. The Barthian way of doing theology places all theological discourse under a massive moral obligation to justify its claim to be theology, by giving some plausible demonstration of its congruity with the Word of God.(40) This obliges me to debate the objections from the hypothetical Barthian on grounds which he and Barth would acknowledge as legitimate, or to provide an ecological theology which is demonstrably born of obedience to the Word of God. The latter course is beyond my scope in this thesis, and I am therefore committed to the former.

Before I launch into the debate with this hypothetical Barthian, it is necessary for me to clarify my intention in this section. My purpose is expressed in the word 'explore' used in the title of this section, and in the word 'debate'. Barth is far too complex and subtle a theologian for me to lay claim to a 'refutation' of the objections in the next few pages. Instead, I lay claim to a serious grappling with the issues he raises, and to sustaining a sympathetic engagement with his thought. This will help clarify some aspects of the definition of ecological theology, and show that a Barthian ecological theology may be possible, at least in theory. But anything further than this would require a thesis of its own.

The first objection was formulated in terms of three propositions: (a) theological discourse about the cosmos is necessarily discourse about man; (b) theological discourse about man is necessarily discourse about the man, Jesus; and (c) the exposition of theological anthropology and the conduct of the scientific enterprise are mutually independent. The lynchpin of this objection is proposition (a), which permits theological discourse about the cosmos to concentrate on the doctrine of man, and on which basis proposition (b) may be maintained. Further, even if (a) were accepted unequivocally, its conjunction with (b) would not necessarily yield (c), even in Barth's exposition. His later exposition makes it clear that the fundamental issue in proposition (c) is the theological relevance of the insights available from the sciences. This is exactly the issue at stake

in the second objection. Thus, in order to debate both objections, it is only necessary to consider the first proposition (a), and to clarify the theological relevance of scientific insight. This will be done in two subsections. Then, in the first subsection of section 4, I will describe a recent attempt to write an ecological theology from a Barthian perspective.

(i) Theological discourse about the cosmos

When Barth states than man is the pars pro toto of the cosmos, he is operating within the constraints of theological knowledge accessible to man through the Word of God. The argument cited above was that the cosmos has no intrinsic light to reveal the divine plan which governs it, but that this plan has now been revealed in the incarnation of the Word. That God willed to become and did become what man is therefore sheds light upon God's relationship to the whole of his creation. Barth acknowledges that this illumination is only partial (which implies that I may have some room for manoeuvre), stating that

> 'the attempt to penetrate to the inner secrets of the relation between God and the rest of creation, and the consequent attempt to explain and present the latter from the standpoint of this relation, can never be more than exercises in pious surmise or imagination. This does not mean that these attempts are strictly forbidden. But it is to be noted that Holy Scripture does not lead us to make them.'(41)

He continues therefore with the claim that

> 'It is enough for us in fact to know the relationship between God and man. We know this from the Word of God.'(42)

Thus, in stating that theological discourse about the cosmos is necessarily discourse about man, Barth is prudently limiting himself to the area of relative theological certainty as opposed to speculative philosophies. He is concerned only with the revelation of God in Christ and the testimony to that revelation in Holy Scripture, and not with any other knowledge. Thus he is not concerned with building bridges between science and theology, or between the biblical account of creation and scientific theories about the world. God has already said all that needs to be said about the cosmos and man's place in it, and the insights of the sciences are only decorative — the icing upon the cake.

His theological certainty is derived from his understanding of Holy Scipture. In the key section to the first part-volume on the doctrine of creation, he argues that according to the biblical witness,

> 'the purpose and therefore the meaning of creation is to make possible the history of God's covenant with man which has its beginning, its centre and its culmination in Jesus Christ. The history of this covenant is as much the goal of creation as creation itself is the beginning of this history.'(43)

The covenant is the internal basis of the creation, and the creation is the external basis of the covenant.(44) The basis for his work on the doctrine of creation is found in the exposition of the two Genesis creation sagas, in the first part-volume. This is then elucidated by forging the link between creation and Christ by means of the concept of the covenant. It is on this basis, and only on this basis, that Barth is able to concentrate theological discourse about the cosmos on the theological understanding of man and therefore on the man, Jesus. Proposition (a) therefore rests on the exegesis of the two Genesis creation sagas undertaken in the first part-volume. I question the adequacy of this basis, and then make use of some of the room to manoeuvre that Barth has allowed me by implication.(45)

Barth's conscious aim throughout the Dogmatics is to listen to what the Word of God is telling forth, and to expound the same. This implies and includes the need for careful attention to the witness of Holy Scripture.(46) With regard to the exposition of the doctrine of creation, however, Barth has listened selectively: his exegesis of the two Genesis sagas is shaped and overshadowed by his prior conviction that creation must be linked to Christ and that the concept of the covenant is the only means to this end. This results in an exegesis which is sometimes artificial, subjugating the historical content of the text and the purposes of the original writers to the later and more authoritative revelation which the text is seen to prefigure and for which purpose it was written. This is particularly the case in his exegesis of the second saga.(47) It also results in a strong emphasis on the pre-eminence of humanity in the cosmos, derived from the pre-eminent glory of Christ.(48)

The effect of this selective attuning to the covenant is to ignore or underplay other features of the biblical witness about the cosmos and man's place therein. An important part of the biblical reflection on creation is concerned with God's relationship to all nature. The natural world has a reality of its own, and its own

existence before God, as part of the complex matrix of human existence and salvation.(49) This means that theological discourse about the cosmos and the theological appreciation of its place in the divine economy cannot be subsumed under or exhausted by theological discourse about man. Barth's attempt to build a doctrine of creation solely on the basis of Christology and covenant fails on exegetical grounds, and with it the first objection to ecological theology is called into question.

In his subsequent volume on 'The Doctrine of Reconciliation', Barth included a lengthy discussion of the creaturely world as the stage and setting for the drama of redemption — an idea easier to grasp, easier to work with, and more congenial to my proposal for an ecological theology, than that of making Christology and covenant the determinants of God's relationship to his creation.(50) Thus having raised a serious question about the validity of the first hypothetically Barthian objection, on grounds that Barth himself would acknowledge as legitimate, it is now possible to look at his later work and be encouraged.

In the later discussions, Barth affirms and supplements his earlier approach by developing it in a new direction. He quotes Calvin with approval, stating that the creaturely world

> 'is the theatrum gloriae Dei, the external basis of the covenant which conversely is its internal basis (C.D. III, 1,41).' (51)

The governing metaphor becomes that of the theatre and its lights, lights which derive their illumination ultimately from the shining of the one true light, the gloria Dei, the light of life, from which they are kindled.(52) The reason for this supplement to his earlier position is based on an awareness that the incarnation meant involvement in the phenomena of daily human existence and susceptibility to the regular and ordered behaviour of the natural world.(53) The question is, how the theatrum in its own existence may be related to the gloria Dei; more precisely, how the many lights of God's creation may relate to the one light of God in Jesus. Barth concludes that the lights are meaningful only in relation to the Light of Life.(54) These lights have a service,

> 'the service of the self-witness of the world that in its existence and nature it is a real world, which is sustained and upheld, which has a basis of constancy as the sphere of the occurrence and revelation of the grace of God in Jesus Christ, and which as such may

> have continuing essence and existence. What is reflected in them as they perform this service is the fact that the Creator is faithful to His creature with the eternal faithfulness which is active and powerful and revealed in His act and revelation of grace in Jesus Christ, and which He has sworn to it with its very creation.'(55)

Once the constancy and service of the lights and words and truths of the cosmos are grounded theologically, it becomes possible (in theory) to fill out some of the details needed to complete the discussion of a theological anthropology based on the man, Jesus, by reference to the universal phenomena of human existence which he shared in his historical experience.(56)

Seven propositions may now be adduced, which may serve as a basic outline for a Barthian perspective on ecological theology:

(1) The cosmos has its reality in intellectu as well as in re, and its constancy and the rhythm of its converse with itself in man are willed, defined, and accepted by God as the appropriate sphere in which His self-revelation may take place.(57)

(2) Within this sphere, the human species is constant in its inner reality and is known in the man Jesus.(58)

(3) The constitution of His human nature is the same as ours; that is, the constitution of humanity (as the object of empirical knowledge) is a constant within the constancy of the cosmos(59).

(4) The regularities of the cosmos (as provisionally observed and interpreted by modern science) describe the limitations placed upon the human constitution and apply to the man Jesus as they apply to the commonality of historical human existence. His susceptibility to them defines and expresses humanity's susceptibility to them, and His response to them defines and expresses the inner reality of humanity's response to them.

(5) Therefore, in order to understand the cosmos and humanity's place therein in theological terms, it is sufficient to understand the place of the man Jesus in the cosmos and the laws of the cosmos (as provisionally understood), as they impinge upon human existence.

(6) It is also necessary, since failure to recognise the limitations which these laws impose upon common human existence eventually implies a Docetic Christology.(60)

(7) This is the context in which the theological reference and relevance of ecological laws and the related question of the ethics of humanity's relationship to the created world, is to be developed.

A Barthian ecological theology has already been attempted, in outline, along lines similar to those stated above. I will describe it briefly in section 4. But the second hypothetical objection is yet to be debated, and the Barthian path explored further, since the objection implies that any attempt to write an ecological theology will necessarily be self-contradictory because of its dependence on scientific insight, the debate about the first objection notwithstanding.

(ii) The theological status of scientific information

The first objection included the statement that theological discourse about the cosmos was ultimately theological discourse about the man, Jesus, to which scientific information about the world and its structures and processes was totally irrelevant. Such information it was claimed, does not illuminate the inner reality of man in his relationship to God, or of the cosmos in its relationship to God. This has been debated to some extent in the preceding subsection, but the issue of the theological status and relative authority of this information was not broached. The second objection states that any attempt to relate faith to a non-theological world-view will necessarily result in self-contradiction. I intend to show in this subsection that this objection is based on a misinterpretation of Barth's argument, and that the issue at stake is really that of the theological relevance of scientific insight. Then, I wish to clarify my definition of ecological theology by specifying a theological function, status, and authority for scientific information, in a way which remains sympathetic to Barth's concerns for the integrity and autonomy of theology.

The second objection is supported in its statement by quotations from Barth's discussion of 'Man in the Cosmos'.(61) These were all taken from an extensive passage, in which he is arguing that

> 'It is no doubt true that human faith has always expressed itself in a particular conception, and human witness in a particular presentation, of the Word of God, and in so doing they have attached themselves to certain cosmologies, assimilating them, understanding them and interpreting them in their own sense, appealing to them to some extent and allying themselves with them... The fact that this has continually happened does not mean, however, that the Word of God itself ... contains a specific cosmology which it is our duty to expound.' (62)

The thesis he is maintaining is that the communication of the faith has, can, and may make use of existing cosmological opinions, but that there is no cosmology to which Holy Scripture is unequivocally committed — and that it is therefore futile for theology to accord any cosmology definitive status. Thus Barth rules out any attempt to accord scientific insight anything more than a secondary status in theological discourse. At the same time, he implies that the theologian may use such cosmologies in his exposition, provided their information is kept within its proper (scientific) limits.(63) In fact, faith, in its relationship

> 'to the cosmological presuppositions and consequences of its witness and confession could and can only be supremely non-committal. It never accepts the material of changing world-views for its own sake ... It is always free in relation to all such conceptions.'(64)

The point at issue is therefore that of the theological status and function of such scientific information at hand which the theologian deems relevant to his theological task.

Barth holds the empirical sciences in high esteem. Within their limits, they contribute positively and helpfully to the life of man, who cannot live without them, even though they cannot penetrate to the inner theological reality of existence. They have their proper and theologically legitimate place when their findings about man, for example, are evaluated by the theological knowledge of the inner reality of man gained from the Word of God.(65) But if and when their findings are elevated to theologically authoritative and definitive status, that elevation is to be opposed.(66)

The debate about the second objection need not, therefore, focus on the necessary self-contradiction of ecological theology which it alleges; instead, it must concentrate on the function and status of scientific information in theological discourse about the cosmos. This will be done by showing that Barth accords real authority to scientific insight into the cosmos, that this authority is nevertheless relative, and that it may be used in the exposition of the faith provided it does not jeopardise its autonomy. In the special case of ecological theology, this will raise the question as to whether the emphasis on the systemic unity of the cosmos and the evidence of the ecological and other sciences necessarily constitutes a threat to the autonomy of theology.

Barth gives serious and lengthy consideration to the reality of the world's existence and the reliability of its regularity and rhythms, as noted in the preceding subsection. This consideration has two foci

in its exposition: the existence and significance of this regularity and the relationship of this creaturely regularity (the lights of the theatrum) to the Word of God.(67)

The world has real existence, and the partial knowledge accessible to humanity through the processes of observation and analysis of its reality is also real knowledge:

> 'On the presupposition and under the condition and limitation that it is created and ruled by God, the world has its distinctive being. It belongs to this distinctiveness, however, that it is not merely in re but in intellectu. ... the being of the world is one which is known by man and in this way knows its own being.'(68)

This reality in intellectu means that the lights and words and truths which shine in the creaturely world may be seen and heard by man, in spite of his sin and in spite of the provisional reliability of his perception, and independent of his attitude to the Word of God. Human knowledge of the cosmos is part of the cosmos's conversation with itself, as a being which is known, contemplated, and apprehended by man and therefore knows, contemplates, and apprehends in man.(69) This unique position of man in the cosmos as the one who sees and hears the lights and words and truths which adorn it, constitutes

> 'a summons and invitation to the active ordering and shaping of things. ... As the intelligible cosmos exists wholly for the intelligent, it desires and demands that in its own way and work the latter should also exist for it. To put it dramatically, it yearns and cries out to be humanised.' (70)

Such 'humanising' is only conceivable and possible on the basis of the reality and constancy of the lights and words and truths which shine in the creaturely world. The cosmos and its constancy is the sphere in which the drama of redemption is enacted as a particular happening within the matrix of the general and predictable features of daily existence. Its constancy is guaranteed by God's faithfulness to his creation, who elects and wills and posits that it should take place in this matrix even though it transcends it in its reality. This means that the reality of the cosmos, even if apprehended only partially by human science, is guaranteed by its Creator, and willed by Him to form the context and provide the vocation for human existence.(71). It also means that the human scientific knowledge about the cosmos has an authority appropriate to the realisation of the human vocation within the cosmos.

The reality of the cosmos and the partial scientific knowledge of it is limited by human frailty and in two other ways as well. The unity and totality of the Word of God contrasts with the plurality and diversity of the lights and words and truths which adorn the creaturely world: it is obvious

> 'that there are world logoi, but it is equally obvious that there is no world logos i.e., no word in which the creation expresses itself in its unity and totality. From this angle, the problem of all creaturely truths is that there are so many of them, that they make themselves known only as partial truths, that none of them is the one whole truth. ... To those who perceive it the shining of the one whole truth, the light of life, which is the Word of God, Jesus Christ, always proves itself to be the standard by which the relativity of all creaturely lights is unequivocally manifested.'(72)

Further, the reality of the cosmos (and therefore of any scientific knowledge thereof) lacks theological finality. Barth shows a shrewd insight into the process of scientific research, when he states that in the dialogue which the cosmos maintains within itself through man, there are

> 'provisional assumptions to which man is invited and constrained but which he is summoned to transcend, deepen, amplify or correct by similar assumptions. None of the agreements or common statements reached in this dialogue, whether speculative, logico-empirical, moral, aesthetic, scientific or mythological, can pretend to be a final and authentic declaration concerning existence.'(73)

Therefore,

> 'when we speak of general validity [as in the case of scientific statements], we refer to the agreements and common statements of many or all men. The certainty of these disclosures thus stands or falls with the self-certainty of man, and confidence in their validity with his self-confidence. Centrally therefore, it is the self-confidence of man, of all men, which, if it is not negated or destroyed or even shattered by the Word of God spoken to him, is certainly called in question and relativised ...'(74)

For the present discussion, this means that the scientific enterprise is based on God's faithfulness to his creation (as noted above), but that the knowledge of the cosmos which it yields is partial and of secondary importance and authority to the Word of God. This is a function of human sin. As and when scientific knowledge is taken into the service of theological discourse, therefore, it must be accorded a status commensurate with its secondary and provisional authority.

It cannot be allowed to jeopardise the autonomy of theology; if it attempts to do so, the second objection will apply, and the theological discourse so propounded will founder in self-contradiction. But as long as the evidence of the ecological and other sciences is kept to its appropriate sphere of reference and authority in ecological theology, such ecological theology is possible from the Barthian perspective and need not be internally inconsistent.

It may now be charged that the definition of ecological theology given above invokes a scientifically-informed world-view and makes it impossible for the ecological and other sciences to be kept to their appropriate sphere of reference and authority; it defines the cosmos as a 'systemic unity', and its concentration on the science of ecology shows that that science is to govern the exposition of ecological theology. I must now attempt to answer this charge.

The real question is: to what extent do the concerns for ecological sustainability, environmental conservation, and the apparent need for a distinctively Christian environmental ethic, take precedence in ecological theology over what the Word of God is saying to man, and distort it according to an a priori ecological-ethical interest? The answer devolves upon what the Word of God is saying to contemporary man, with particular regard to the doctrine of creation and the God-given context of human existence. My account of Barth's thought helps provide the answer here, for it is evident from his discussion of the lights and words and truths which shine in the creaturely world that the Word of God wills and establishes the boundaries, constraints, parameters, and goals of human existence within the cosmos. Holy Scripture establishes the existence of such limits and directions, but only in principle, for it does not attempt to describe them in any final way or in a way that attempts to match the precise but nevertheless provisional formulations made by scientists. The 'summons and invitation' given to humanity 'to the active ordering and shaping of things' is one such statement of general principle (Genesis 1:26-28). It receives its specific content in the endeavours and future planning of each succeeding generation, which interprets the world's yearning and crying out to be 'humanised'(75). The reality of the cosmos in intellectu, which vouches for the reliability and relative authority of the lights and words and truths of the creaturely world, also implies that the specific articulation of these lights and words and truths to each generation are part of the address of the Word of God to that

generation. Part only; a part which contrasts in its diversity and relativity, with the single ultimate absolute finality of the Word of God; but a part of His address nonetheless.(76).

The question may now be answered. Ecological theology, on Barth's terms, may be understood as the theological articulation and delineation of the boundaries, constraints, parameters, and goals of human existence within the cosmos, in the form of an address to the contemporary generation. That generation is aware(through the scientific enterprise and its investigation of the creaturely lights willed and established by God) that these limits and directions include ecological constraints on the human species. These limits and directions, whose existence is stated or implied in general terms in Holy Scripture, receive some of their specific content in ecological terms — this is how their theological articulation may be appropriately described as 'ecological'. This gives content to the expression 'ecological theology' which does not allow the ecological concern to jeopardise the autonomy of theology. Instead, the validity of ecological discourse specifies, assists, and promotes the theological articulation of the Word of God addressed to the contemporary generation.

This means that the second objection made by the hypothetical Barthian theologian need not be upheld either. At best, the debate about the objections may only imply that a Barthian ecological theology is possible in principle — a rather uninteresting conclusion, because of its indefiniteness. The next section shows that ecological theology may be part of systematic theology, by adducing a Barthian ecological theology, an ecological theology from the perspective of process theology, and then discussing how ecological theology may be undertaken with reference to the biblical testimony and the traditional concerns of systematic theology.

4. Responsio: Exposition and settlement of the question.

So far, this chapter has been concerned with defining the term 'ecological theology' and debating whether or not ecological theology may be part of the discipline of systematic theology. The results of sections 2 and 3 show only that an affirmative answer may be possible in theory. But existence in theory is neither as interesting nor as convincing nor as satisfying as the demonstration of existence. So this section will begin with brief descriptions of two ecological theologies which have appeared in recent literature; the first, appropriately, from a Barthian perspective (subsection (i)), and the second from that of process theology. The third subsection will then show how the task of ecological theology may be undertaken with reference to biblical scholarship and the traditional topics of systematic theology.

My purpose in adducing the ecological theologies of Hermann Dembowski and John B. Cobb, Jr., is to show that there are systematic theologians attempting to write ecological theology in the sense I have defined. It is not my purpose to analyse or criticise the merits of their attempts, only to describe and explain.

(i) Hermann Dembowski: a Barthian ecological theology

The German journal Evangelische Theologie has devoted two issues to theological discussion of the environmental crisis, in 1974 and 1977 respectively.(77) The paper by Dembowski which is described here appeared in the later issue, and was titled 'Ansatz und Umrisse einer Theologie der Natur'.(78) The editor stated in his introduction to that issue that Dembowski

> 'spricht — unter eigenständiger Fortführung Barth'scher Traditionen — von einer "Soteriologie der Natur", die auf Grund der in Jesus vorgegebenen "Wahrnehmung der Natur" zur einer unentfremdeten Praxis der Naturumgangs beitragen müsse.'(79)

The paper itself was one of several discussion papers presented at a conference held at the Evangelischen Akademie, Hofgeismar, in 1975. My immediate aim is to describe the logic underlying Dembowski's exposition, even though his paper is presented in programmatic outline. I will do this by letting Dembowski speak for himself.

The following concepts are basic to his exposition: the concept of the world-house (das Haus der Welt) and the house of peace (das Friedenshaus); the concept of pervasive alienation (Entfremdung); and

the concept of perception (Wahrnehmung), which is central to his whole approach. I will describe these concepts in turn.

The world-house is the meeting place of nature and culture. Nature

> 'ist zu verstehen als das allem Erkennen und Handeln des Menschen Vorgegebene, soweit es nicht durch dieses Erkennen und Handeln bestimmt ist.'(80)

Thus nature surrounds man and includes him; its centre of gravity (Eigengewicht) is within and around humanity. Culture

> 'ist zu verstehen als das Integral von menschlichem Erkennen und Handeln, die Natur als das dem Menschen Vorgegebene wahrnehmen.'(81)

Culture has the dimensions of work and interaction, and as the totality of human behaviour finds its centre of gravity in relationships. Neither nature nor culture exists without the other, and they are ambivalent in themselves and in their relationship to each other. They meet in the world-house:

> 'Natur und Kultur treffen sich im Haus der Welt als der geschichtlichen Heimat des Menschen. Dies Haus der Welt wird unumkehrbar von der Natur wie der Kultur her. Es ist ambivalent. Es wird zur Heimat wie zur Fremde, von Natur wie von Kultur her.'(82)

This world-house may be a house of peace, if the complex of relationships between God, man, nature and culture is maintained in the right perspective (perceived rightly), and each is accorded its due significance.(83) But this is not the case, and the blame for the present situation lies with man:

> 'Dieses Haus des Friedens von Natur und Kultur ... ist immer schon in ein Haus des Streites verkehrt. Es ist zerfallen. Die Heimat ist Fremde. 'Wodurch geschieht dies? Es Geschieht durch den Menschen. Der löst sich von Gott und Natur und seinesgleichen aus Angst und im Streben nach absoluter Autarkie.'(84)

The result is alienation.

> 'Der Partner — Mensch, Natur, Gott — wird zum Feind oder zum Material, das man ausbeutet. Entfremdung trennt das in Frieden Verbundene. Das Haus der Welt zerfällt. Es wird zur Fremde...'(85)

And this alienation is all-pervasive. God becomes an enemy, against whom man must assert himself. Humanity is self-estranged, as man struggles against humanity. Nature

> 'wird zum getretenen, ausgebeuteten Sklaven der Kultur, zur Fremde, die ein spiegelndes Abbild der Fremdheit des Menschen ist.' (86)

But the exploited slave rises against man and threatens him in his struggle for autarchy, by asserting and demonstrating humanity's (ecological) dependence upon nature. It becomes 'demonic'.(87) In sum,

> 'Auf diese Entfremdung ist die Welt vom Menschen her festgelegt. Es liegt ein Bann über ihr, der Bann der Entfremdung. Das ist Unheil. Dieses Unheil bestimmt die Wirklichkeit von Welt.' (88)

Man is homeless. Homeless man, alienation, and ecological crisis characterise the human situation.(89)

The task of an ecological theology (Theologie der Natur) is to address this crisis of alienation:

> 'Theologie der Natur wäre eine Soteriologie der Natur für den Menschen, ... Aufgabe der Theologie der Natur ist das Wort zur rechten Wahrnehmung von Natur in Kultur angesichts der faktischen Entfremdung.' (90)

It does this through Jesus Christ. He is the exorcist of the demonic powers unleashed by human sin, he is the one who disarms the power of alienation. He does this

> 'im Durchbrechen des Bannes von Angst und Entfremdung, in rechten Wahrnehmen von Gott und Mensch und Natur. Diese Entmächtigung ereignet sich als Aufklärung, die sehen macht, was ist, warum es so ist, was sein kann und sein soll; ... sie ereignet sich als das Stiften neuer, unentfremdeter Beziehung von Gott und Mensch und Welt, von Natur und Kultur und sie ereignet sich als die Provokation, in neuem Verhalten und neuen Verhältnissen Gott und Mensch und Welt in der Beziehung von Natur und Kultur anders, neu und recht wahrzunehmen...' (91)

These passages, and the statement in Dembowski's summary passage that

> 'Der Zauberspruch lautet: rechte Wahrnehmung!'

highlight the importance of the concept of Wahrnehmung.(92) What does he mean by the term?

He states that it links three elements together, namely recognition, action, and truth; but the 'recognition' is defined in terms of perceiving, so there is but little help there.(93) But this is the nub of the problem. The realisation of perception in human experience and history has been ambivalent:

> 'Sie vollzieht sich in den Dimensionen von Arbeit und Interaktion, einer Polarität, die nicht aufzuheben ist, in der das Zueinander der beiden Weisen immer neu zu suchen und zu finden ist. Sie vollzeiht

> sich im Gegensatz von Sünde und Heil und ist damit immer wieder durch Scheitern und die Chance des neuen Anfangs der durchhält, bestimmt.' (94)

And man in his self-contradiction has forfeited the capacity to perceive rightly. Thus the human task in theological ecology (in theologischer Ökologie) is to achieve the right perception of nature, and to direct human life and enterprise according to that perception, in obedience to the Word of God. For man

> 'seine Wahrnehmung von Welt setzt die Wahrnehmung von Welt durch Gott voraus'

and therefore

> 'weil Gott Weltwahrnehmung recht vollzogen hat, hat der Mensch rechte Weltwahrnehmung zu vollziehen.' (95)

Of himself, man in his self-contradiction cannot perceive the inner reality of the relationships between God and humanity and nature and culture, as God sees them and intends them to be seen. The theological problem is insoluble except in the person of Jesus:

> 'Theologie ... hat dem zu entsprechen, was in Jesus als dem Christus heilsam getan und daraufhin vom Mensch zu tun und zu lassen ist. Das Wirken Jesu Christi ist bestimmt durch seine Interaktion mit Menschen, ihrem Verhalten und ihren Verhältnissen. Diese Interaktion vollzieht sich als Wahrnehmung.' (96)

His work is twofold: he shows the required rechte Wahrnehmung, and addresses the crisis of alienation. This means that the world-house may become once more the house of peace. This is the ultimate result, which may be realised proleptically through the work of the Holy Spirit. (97)

The twofold work of Jesus is discussed at length in section VII of Dembowski's paper, where he expounds the thesis that Jesus' historical existence revealed the right perception of nature and culture. (98) For example,

> 'Jesus Christus nimmt Natur im Menschen wahr, indem er ihr speisend und helfend und heilend und Leben spendend das Ihre gibt: Leiblichkeit ist das Ende der Wege Gottes! ... [Er] nimmt Natur um den Menschen wahr, indem er sie entgottet und profanisiert, in ihrer Eigenwirklichkeit und ihrem Eigengewicht sehen macht, in ihrer Schönheit und Drohung anspricht und sie als Lebensraum und Lebensmittel auf den Menschen bezieht.' (99)

But Jesus also reveals that the alienation between God and man is the root of all evil and all other alienation, including that which exists between nature and culture. He removes the fundamental alienation and leaves humanity the task of overcoming and removing the others. (100)

This work of Jesus expands the breakthrough from death to life of his resurrection, which therefore transforms nature as well as humanity. This transformation

> 'ist wirklich ... von der Entfremdung zur wahrnehmungsreichen Beziehung, von der Lüge zur Wahrheit, von der Knechtshaft zur Freiheit. [Sie] ist eindeutig in ihrer Tendenz des Überwindens von Entfremdung und der Eröffnung unentfremdeter Beziehung von Gott und Mensch und Natur ... so wird aus dem zerfallenen Haus weltlicher Fremde das neue Haus, die neue Heimat. Der unbehauste Mensch findet sein Haus in der recht wahrgenommenen Einheit von Natur und Kultur.' (101)

In section X, Dembowski outlines some of the practical implications of this new situation. There is a twofold relationship between humanity (culture included) and nature, and the two types of relation are differentiated yet belong together. In the work-relationship,

> 'geht der Mensch so mit Natur um, daß er sie als Vorgabe distanziert, in ihrer Eigenart erkennt und aufgrund dieses Erkennens erfindungsreich verändert, gestaltet und nutzt, ohne sie zu zerstören';

in the relationship of interaction, humanity deals with nature

> 'daß er sie als Partner hegt, pflegt, zähmt und sie zu dem Ihren kommen läßt, indem er zu dem Seinen kommt, in vertrauter, unentfremdeter Nähe.' (102)

This is part of the right perception of nature within and around humanity for which it has been entrusted to man. This has the evident implication that human science and technology should adapt themselves and their processes to the needs and processes of the natural order, though Dembowski does not draw this out. The insights of ecology and the scientific analysis of structure and process have clear relevance at this point. But Dembowski is content to conclude his programmatic outline of ecological theology with a cautious statement about the need for further interdisciplinary discussion (at Hofgeismar immediately, and generally thereafter). (103)

The description of Dembowski's paper which I have given shows that it represents a determined attempt to write an ecological theology from a Barthian perspective. Dembowski's central concept is that of the rechte Wahrnehmung, and the object of this right perception is the complex of interrelationship between God, nature, humanity, and human culture. This perception is revealed by Jesus Christ in the total work of his historical existence (including death and resurrection), which

overcomes the alienation between man and God. This alienation is the root of the other alienations which characterise the existence of man in his self-contradiction, and of which the contemporary ecological crisis is but a symptom. With the overcoming of the fundamental alienation between God and man, the task of overcoming the consequent alienations has been entrusted to man. This can only be carried out by taking proper account of the scientific insights into nature, so that man's interaction with nature may be rightly perceived, guided, and enacted. This is the task of theology, and of ecological theology in particular:

> 'Sie nimmt wahr, was Gott — Not wendend — getan hat, tut und tun wird. Sie nimmt wahr, was der Mensch daraufhin zu tun und zu lassen hat ... Als Theorie der Praxis Gottes und der ihr entsprechenden Praxis des Menschen ist Wahrnehmung rechten Handelns das Ziel von Theologie.'(104)

It is this view of the theological task which enables Dembowski to attempt an ecological theology, which

> 'hat im Horizont der notwendenden Praxis Gottes im Wechselbezug von Kultur und Natur konkrete Not und deren Wende wahrzunehmen.' (105)

Dembowski's paper therefore shows that ecological theology as defined in section 1 above may be part of the discipline of systematic theology.

The next subsection adduces another example of a systematic approach to ecological theology — from process theology.

(ii) A process theologian's perspective: John B. Cobb,Jr.

I have four reasons for choosing my second example of a systematic ecological theology from the ranks of the process theologians.

First, I need to show that my definition of ecological theology admits a number of different approaches to the task. The definition would be misleading if ecological theology were possible from the Barthian perspective and no other, since it would then be a peculiarity of that tradition which the definition should take into account. As it stands, the definition is stated in general terms and its generality implies that, if ecological theology is part of systematic theology, it may be undertaken from any theological perspective. So a second example of existence is needed to justify the generality of the definition.

Second, process theology may be regarded as an unusual type of systematic theology. It is based on a pre-determined cosmology, that derived from the metaphysic of Alfred North Whitehead on the basis of the then contemporary scientific understanding of the world, and supplemented by new scientific insights as necessary. Thus it appears to be a type of theology which Barth would oppose, raising the objections of section 2 but on whose behalf the arguments of section 3 are not immediately applicable. The choice of process theology therefore adds an element of richness and variety to the present discussion.

Third, process theology makes a strong claim to provide a viable environmental ethic and the only world-view which will ground such an ethic theologically. Thus John B. Cobb's book Is It Too Late? A Theology of Ecology is divided into two parts: part one speaks of 'The need for a New Vision', and part two describes 'The New Vision We Need'.(106)

My last reason for choosing process theology relates to the subsequent development of this thesis: I will be concerned with the discussions which have taken place in the Church and Society programme of the World Council of Churches. Process Theologians have been active in these discussions, particularly Charles Birch, though Charles Hartshorne, John Cobb and David Griffin have also contributed.(107) But their contributions generally have taken the form of protests against the more traditional theological views represented in the discussions, and which the process perspective finds inadequate. For their part, they have failed to give consistent articulation of the theological and philosophical background to their protest, and have concentrated on the ethical questions instead.(108) So this subsection provides a convenient place to air the ecological theology which underlies the process theologians' approach to the Church and Society programme.

As with Dembowski's paper, I will describe but not criticise or evaluate. I am not concerned to debate the philosophical adequacy of Whitehead's metaphysics, nor its adequacy in terms of the contemporary scientific insight into the world's structures and processes. I am not concerned to debate the claims process theologians make about the inadequacies of classical theism, their claim (against possible Barthian objections, for example) to be regarded as theologically 'legitimate', or even to debate any of the claims which Cobb makes in

his exposition. My sole concern is to demonstrate that, on the basis of the process theology assumptions and ways of arguing, ecological theology may be part of a process systematic theology; and therefore that the question at issue in this chapter may receive an affirmative answer.(109)

I have chosen John Cobb as my main exemplar — as against Charles Hartshorne, the 'father' of process theology, and Charles Birch, the main proponent of process theology in the ecumenical forum — because he has given the most sustained theological attention to the ecological crisis. My sources includes his books God and the World; A Christian Natural Theology Based on the Thought of Alfred North Whitehead; Is It Too Late? A Theology of Ecology; and a joint work with David Griffin which includes a chapter by Cobb titled 'The Global Crisis and a Theology of Survival'.(110) Birch, however, has not published such an explicit articulation of the process stance, but since he and Cobb have worked in cooperation, an exposition of Cobb's approach may serve as an introduction to that of Birch.(111)

I turn now to the logic of the process theology approach, as interpreted by Cobb. In God and the World, Cobb argues that

> 'when the affirmation of the world is cut off from faith in God, it ultimately undercuts itself, and that a devotion to the divine which turns its back upon the world is a rejection of the God known in Jesus Christ.'(112)

His underlying conviction is

> 'That the vision of the world as creation is the context and presupposition of Christian belief and theology ... The importance of the world derives from its relation to God, and this relationship is such that faith in God expresses itself as the affirmation of the world and involvement in it.'(113)

The book's final chapter is titled 'Is Christian Theology Still Possible?', and argues that the vision of the world as creation has been lost to modern theology in its response to Hume and Kant; he cites Barth, Bultmann, and Tillich as witnesses.(114) He then answers that Christian theology is not possible if the modern (Hume-Kant) vision of reality is accepted as context and norm, but that it may be possible on the basis of a 'postmodern' vision. He then states that

> 'the Whiteheadian understanding of the world is postmodern in the requisite sense. ... it offers us a new interpretation of the world as creation, which provides an adequate and advantageous context for

> meaningful formulation of the central affirmation of Christian faith.'(115)

Whitehead's philosophy is strongly ecological in its view of the world's structure and in its general character, and Cobb describes it as an 'ecological philosophy'. The ecological character of the foundations is evident in the ethical and theological edifices Cobb builds upon them. It is on ecological grounds, for example, that Cobb finds the concept of stewardship inadequate as a description of the ethic of man's relationship to the nonhuman world. He suggests instead that the image of co-participation in a process of healing and growth would be more appropriate.(116) In part, this is based on the understanding of man's ecological continuity and congruity with the animal world.(117) But it is also based on an understanding of God's relationship to the world: man is coparticipant with God as well as with nature. This helps give theological grounding to process theology's environmental concern.

The theological grounding is supplied by the understanding of God's relationship with the world. God lures the world on, from moment to moment, with the aim of maximising 'beauty' and 'enjoyment'. Ideally, the process of healing and growth

> 'makes for life and the enrichment of life, variety of forms, intensity of experience, consciousness, and love.'(118)

The evolutionary process is interpreted in these terms, as a process of novelty and complexification which maximises beauty and enjoyment.(120) Process theology also maintains that the world's history affects God in his consequent nature, so that ecological maladroitness on the part of man frustrates the lure of God, at least pro tem. Because

> 'God is the unified experience of all things, [he] is impoverished when the rich complexity of the biosphere is reduced ... The divine experience is most enriched as it receives the widest variety of types of enjoyment. To simplify, even for the sake of the individually most important contributor [man], is still to impoverish. This appeal to God simply brings to consciousness our prereflective sense that we live not only for our own enjoyment but also for the Whole of which we are parts.'(121)

This grounds an ecological ethic in two ways. First, commitment to God seeks to align human life with the creative process, to promote life in its variety and intensity; but also to maintain a sensitivity

to the total long- and short-term ecological consequences of human action, in order to promote and maximise 'beauty'.(122) Second, since God's purpose is the evocation of beauty throughout his created world (in which all entities are constituted by the capacity to experience), the human alignment with God's purposes respects the experiencing subjectivity of the nonhuman world and its contribution to the total beauty of the world: this results in a reverence and respect for the nonhuman world based on its subjectivity.(123) As a free agent, man may choose not to align himself with God, in which case he is not a coparticipant with nature and God in the creative process, but a source of evil and destruction.(124)

Process theology is based on an ecological understanding of the world, mediated through Whitehead's metaphysics, and includes a theological sensitivity to the world's ecological structure which lends itself to and expresses itself in an ecological ethic (if only in embryo).(125) But does this make all process theology 'ecological'? Not in the sense in which I have defined the term 'ecological theology'. Ecological theology concentrates on the cosmos and the human place and influence therein. Thus the process theologians' discourse about the cosmos in its relationship to God is not, in itself, ecological theology. Nor is their theological anthropology, insofar as it is concerned with human existence per se, as in the discussion of the human soul or the structures of human existence in terms of consciousness and experience.(126) The locus of ecological theology from the process perspective is the discussion of the human relationship to the cosmos. This has two aspects. First, process theology stresses the biological and ecological congruity of the human species with the animal-natural world. Second, it affirms the positive value of human science and technology, if directed aright, in the achievement of God's creative purposes for the world.

Process theology charges that the imago Dei tradition has been magnified out of proportion in Christian theology. This has led

> 'to a threefold distinction of God, man and nature against the more basic biblical distinction of creator and creation. It is the image of creaturehood which we need now to recover without the loss of the biblical sense of man as the apex of creation.'(127)

The image of cocreaturehood seeks to redress the balance by taking seriously man's inclusion within nature. In biological and ecological

terms, humanity is a species and may be studied and understood by the same general means as those used in the biological and ecological studies of other species. Man has evolved with and from the nonhuman world to which his life is still inextricably linked, and Cobb states that this insight is of 'great importance' for 'man's fundamental self-understanding'.(128) He discusses the assertion that 'man is his body', which seems to provide adequate theological stress on man's inclusion in nature.(129) But this assertion presents problems with respect to the notion of 'person'. These are best resolved, says Cobb, if man is regarded as fully a part of nature, whose distinctiveness within the natural order is manifest, but is also contiguous with the qualities evident in that order to such a degree that of itself this distinctiveness does not provide adequate grounds for separating man from nature. He concludes that

> 'To know myself as within nature is to know that the ecological system of interpenetration and interdependence includes me, both my body and my personality ... it is to cease to think of [an individual] "person" as existing prior to or independently of his relations [which] extend throughout the body and throughout the wider environment.'(130)

The other aspect of the human place and influence in the cosmos relates to the power of self-actualisation given to man as a free and creative agent in the cosmos. Cobb argues that

> 'God seems to call every living thing to a self-actualisation in which immediate satisfaction looms large. That means that God values intensities of feeling even at the price of endangering harmony and order. In the long run, future entities can themselves achieve higher values only when this risk is taken. The evolutionary process has finally led to man, who is capable in principle of unlimited concern for others; and where this capability is present, God calls for its fullest actualisation.'(131)

The 'price of endangering harmony and order' may, because of human activity, be paid in the coin of human self-destruction; but this is a risk which God is prepared to take for the sake of his goal of maximising the creation's novelty, complexity, and beauty. Is the goal worth the risk? Yes, if the human concern for others (including the subjects of the nonhuman world) is fully actualised in man, for then

> 'process theology maintains that science guided by imaginative vision can find ways whereby a relatively large (though certainly limited) human population can enter into new and finer forms of enjoyment that are

> compatible with sharing the earth with many other species.'(132)

Process theology claims to supply the imaginative vision that is needed, in terms of alignment with God's creative purpose and process, co-participation in the process of healing and growth, and in terms of belief in God:

> 'To believe in God is to trust his creative work amongst and within us, to adapt ourselves to it, to attend to it as it operates in all creatures, to sensitize ourselves to it as it works in us, and to respond to its call to new risks. Belief in God is thus ... a part of a total vision within which science and technology can become servants of life rather than conquerors of nature.'(133)

That is, God's lure of creative-responsive love may also work through human science and technology to achieve and realise God's ultimate purposes, as long as these human enterprises are directed to the enrichment of life and the maximising of 'beauty'.

It is not possible for me to do justice to the complex and specialised ideas and vocabulary of process theology, or the subtleties of its arguments, in the space of a few pages. I have supplied only the barest sketch necessary for the purpose of this subsection, namely to show how ecological theology may be part of systematic theology undertaken from the process perspective. Two aspects of Cobb's treatment stand out: the stress upon humanity's continuity and congruity with the nonhuman world, and the conditionally positive affirmation of science and technology as agents of God's responsive-creative-luring relationship to the world.

It is interesting to make a brief comparison between Cobb and Dembowski at this point. Both ecological theologies include the concept of a 'right perception' of nature and the complex of inter-relationships between God, the human species, human culture, and nature. For process theology, this is the imaginative vision necessary for belief and commitment; this perception is informed by the sciences and by Whitehead's metaphysical interpretation of nature, man and God. But for Dembowski, this perception is informed theologically, in the man Jesus Christ. He and Cobb are, methodologically, poles apart. Yet both agree that the human relation to nature involves nurture and cultivation which allows nature to 'come into its own' (Dembowski) and to enhance the richness and complexity of life (Cobb). Dembowski speaks of partnership between man and nature, Cobb of coparticipation

with nature and God in the creative process. Science and technology may play their part in this nurturing: Dembowski is silent about their evaluation, but Cobb gives them a positive, if conditional, affirmation.

This means that, ultimately, Cobb and Dembowski are saying similar things about environmental ethics, in spite of the differences in theological approach. If the charge recorded in Chapter One — that Christian theology has fostered an aggressive and exploitative attitude to nature — has any truth in it, then at least two recent ecological theologians have sought, from their different perspectives, to set the record straight again.

To conclude this chapter and to settle its thematic question in the affirmative, it is necessary to show how ecological theology may be undertaken in the light of biblical scholarship and the traditional concerns of theological discourse. This is done in the next subsection.

(iii) The Bible and ecological theology.

This chapter has debated the question whether the discipline of systematic theology may include ecological theology. Two recent ecological theologies have been described, to add definiteness to the plausibility of an affirmative implied by the debate to the end of section 3. But there is another question, not yet touched on: the question of resources for the task of writing an ecological theology.

The science of ecology and the other sciences in general provide the necessary technical and informational resources. In the practical task of writing, this resource may supply the vocabulary and the body of concepts needed to give an informed, coherent, and convincing ecological character to the theological discourse. Subsection 3(ii) above discussed the status of this technical resource, concluding that it may be primary and authoritative (as in process theology), or secondary. If it is to be secondary, then it is necessary to ascertain the extent of the primary theological resource available for the task.

The Bible provides an obvious resource, since it includes theological interpretations of the cosmos and humanity's place therein, and since it is traditionally esteemed as a general theological resource of unique authority. So this section will concentrate on the relevance of the biblical witness for the task of ecological theology.

There are two other reasons for paying special attention to the biblical witness at this point in the debate. As noted in Chapter One above, it is sometimes stated that the Bible has provided the inspiration for and the proof texts to justify an aggressive and exploitative attitude towards nature, and is therefore a significant contributory cause of the contemporary environmental imbalance and crisis. As well, it is sometimes stated that the Bible fosters an attitude of contempt for, and therefore (ecological) neglect of, this historical world in favour of the world to come. Both of these charges imply that there is a need to find out what the Bible actually does say about the cosmos and humanity's place in it, by examining it afresh.(134)

The second reason is that there is evidence of some malfunction in the process of theological application of biblical scholarship, and this has appeared in one of the theological discourses relevant to ecological theology — the doctrine of creation. There is a close correspondence between the theologians' and the biblical scholars' interpretations of the biblical material on creation, which in itself would be a healthy consensus, except that their common view is not faithful to the breadth and complexity of the biblical reflection on creation. The consensus has been that the biblical interest in creation is secondary to the biblical concern about man and his salvation; this has led to an impoverishment of the theological attention to the place of nature in the divine economy.(135) This gives added impetus to the need mentioned above, to take a fresh look at what the Bible has to say about the cosmos and man's place in it.

Two new approaches to this problem have appeared in recent years, which I will now describe briefly. These are by Claus Westermann, the distinguished Old Testament scholar, and the biblical theologian Odil Hannes Steck.

In 1968, Westermann published Der Segen in der Bibel und im Handeln der Kirche.(136) There he argues that the word 'salvation' has been used uncritically and imprecisely, and that this usage has been assumed to correspond to the Greek σωτηρία. This has led to a confusion between the event of deliverance and the state of having been delivered, and the event has come to (an unwarranted) theological prominence at the expense of the condition the deliverance initiates. In its turn, this has led to a non-biblical view of God's dealings with mankind. Theology has had a one-dimensional view of salvation, as act-of-deliverance; the Bible has a two-dimensional view, in which God's blessing is there alongside his deliverance.(137).

In his saving acts, God is experienced as the one who comes to his people. These acts do not of themselves supply the element of continuity and constancy necessary for human existence, and which is the sphere of God's presence amongst his people as the one who blesses and sustains. Thus Westermann argues that

> 'In addition to [God's "mighty acts"] , experienced in events, God's work with his people includes things manifested not in deeds but in processes [such as] the growth and multiplying of the people and the effects of the forces that preserve their physical life ... [including] growth, prosperity, and success in all their forms.'(138)

The task of speaking of God in the light of the meaning and significance of blessing, and of God's bestowal of blessing, is the task of elaborating a 'theology of blessing'.(139) Here the Priestly corpus represents an extremely important source, for it includes within its scope the entire history of blessing, with all its possibilities. For example, in Genesis 1,

> 'the concept of blessing has the widest meaning that it has anywhere in the Bible. The creator blesses what he has created — all mankind and all living creatures...'(140)

Subsequently, Westermann developed these insights into the concept of blessing in his massive commentary on Genesis, using the concept of das Urgeschehen. This is, in sum,

> 'die Bedingung der Erfahrung, auch der geschichtlichen Erfahrung, es stellt den Möglichkeitsraum elementarer Erfahrung zusammen. Urgeschehen ist das, was "in, mit, und unter" jeder Erfahrung miterfahren wird.' (141)

It relates to the universal history of God with his creation, and the regularities of the phenomena of human existence; in Barth's terms, the lights and words and truths which shine in the creaturely world. Thus Westermann is following a line in biblical scholarship parallel to that traced by Barth for systematic theology (and discussed briefly in my section 3 above).

I have mentioned Westermann's work because it marks a new direction in biblical scholarship's concern to ascertain what the Bible does say about the cosmos. There is another reason, linked to the subsequent course of this thesis. One of the main theological contributors to the conference on Faith, Science and the Future (1979) based his theological and exegetical approach on Westerman's category of das

Urgeschehen, stating that this concept justifies ökologische Auslegung of the biblical texts.(142) I will discuss this in Chapter Four, Section 3 below.

My other example of a new approach arises in direct response to the theological challenge implied by the environmental crisis. In 1978 Odil Hannes Steck published Welt und Umwelt, in which he sought to answer the question about the relevance of the Bible to this comtemporary crisis.(143) Steck is a young biblical scholar, who received his doctorate in New Testament studies in 1965, and is now Professor of Old Testament at Zurich. To my knowledge, his book represents the only lengthy and detailed examination of the biblical material which has been undertaken specifically with an eye on the theme of man's relationship to the environment. However, his material plays no further part in the development of this thesis, so I shall give only a very brief outline of what he says: this cannot hope to do justice to his book, but this brevity is justified by the direction of my thesis.

His biblical source material includes most of the New Testament, but is more selective in its reference to the Old Testament; there, he uses only the Yahwist's and the Priestly pre-histories, and Psalm 104. He investigates seven aspects of the Old Testament statement: statements about

(1) the widening perspective of the natural world, and environment;

(2) the natural world and environment as creative and initial event;

(3) the natural world and environment and what is known of it in the world picture;

(4) the gift of life as the basic experience which gives man his bearings in his perception of the natural world and environment;

(5) Yahweh and the natural world and environment;

(6) the view taken of man and his shaping of the natural world and environment; and

(7) the problem of the natural world and environment as creation, in the light of negative experiences of its power.

The New Testament investigation is briefer because there are fewer texts on the subject, and because many of them presuppose (but do not add to) Old Testament insights already described. In the New Testament section, therefore, Steck concentrates on the new insights and supplements to the Old Testament statements.(144). This results in four more thematic investigations, of

(1) Jesus Christ as God's entry into the natural world and environment;

(2) the natural world and environment in the light of Christ's coming;

(3) the future of the natural world and environment in the light of Christ's coming; and

(4) the preservation of the natural world and environment as the goal of faith.

The work does not permit easy summary. Two citations may serve to give some of its flavour: the biblical testimony implies

> 'that true validity and primacy should be conceded to the elemental, fundamental value of natural life, both human and nonhuman, for this is in accordance with the Creator's acts.'(145)

Creation itself is an ongoing process which is directed towards all the living, and which includes and gives value to man and nature equally. Therefore

> 'to preserve the natural world and environment as a goal of faith in action is therefore love of our neighbour in a form related to our experience of God the creator. This experience must be given expression in appropriate acts of love on the part of the believer. In our present situation especially, this love of our neighbour is certainly not restricted to the elemental life of men and women in their natural, given world. ... Such neigbourly love, since it also means "cocreatureliness" on the part of man, certainly also includes nonhuman life. For according to the New Testament, the world of creation is not only for man,but,together with him, is prepared for God's future salvation.'(146)

It is interesting to note here that Steck is implying an environmental ethic similar in its general tenor to that espoused by Dembowski and Cobb. This consensus may represent a yielding to environmentalist pressure on the part of theologians, or it may represent a recovery of an under-emphasised Christian truth. But that makes another thesis.

The biblical material itself indicates that an ecological theology which takes its cue from the Bible will draw on at least three areas of theological discourse: the doctrines of creation, theological anthropology, and eschatology. Steck touches on each of these in his exposition. They are unavoidable because the Bible points the inquirer in these directions. It speaks of the cosmos as created and sustained by God (Genesis 1 and 2, Psalm 104, Hebrews 11:3): of humanity's place in it as steward, image of God, and vulnerable creature; and of a new heaven, new earth, and celestial city (Revelation 20 and 21, Ezekiel 48),

the resurrection of the physical body (1 Corinthians 15), and the eschatological liberation of the nonhuman world from its bondage to futility and decay (Romans 8:18ff). These areas may be held together in a Christology of cosmic significance (John 1, Colossians 1); this functions as a sort of theological synthesis.(147) The concrete aspect of the biblical witness is found, however, in the doctrines of creation, anthropology, and eschatology, and ecological theology will elaborate these in conjunction with scientific insight into the world's structure and processes, including human synecology.(148)

If 'creation' is understood as the theological discourse about the cosmos in its own reality and in its relationship to God; 'anthropology' as discourse about man as he is in himself (with his culture and his capacity for science and technology and hence environmental manipulation) and about man specifically as he is in relation to his environment (including his biological contiguity with the nonhuman world, and his ecological vulnerability); and 'eschatology' as discourse about the metahistorical Kingdom of God, in all its aspects (including the degrees of continuity and discontinuity between this contemporary historical existence, and the metahistorical),

then 'ecological theology' may be understood as the attempt to coordinate theological discourse about creation, anthropology, and eschatology with the insights available from ecology and the life, natural, and social sciences. In this way ecological theology may have a biblical frame of reference.

****

I have shown in this present chapter that ecological theology may be defined consistently and coherently, as theological discourse about the systematic unity of the cosmos and humanity's place and influence therein, with special reference to the provisionally valid insights of ecology and the sciences generally. I have shown that ecological theology so defined may be part of the discipline of systematic theology, and may be undertaken from several theological perspectives.

Ergo: I conclude that ecological theology, as defined in Section 1 above, may be part of the academic discipline of systematic theology. This justifies my attempt to write a theological survey of ecological theology in the context of the Church and Society programme of the World Council of Churches.

CHAPTER III: The M.I.T. Conference and its Background.

The MITconference was an official function of the subunit on Church and Society within the World Council of Churches. It was not a function of the World Council itself, even though its official report is subtitled 'Report of the World Council of Churches' Conference on Faith, Science and the Future'.(1)

The Church and Society subunit is a subunit of the Programme Unit on Faith and Witness.(2) It is the direct descendant of the Life and Work Movement, which was founded at the World Missionary Conference at Edinburgh in 1910, and held its own conferences at Stockholm (1925) and Oxford (1937) before its merger with the Faith and Order Movement at Utrecht in 1938 and the formal inception of the World Council of Churches at Amsterdam in 1948.(3) It is now headed by Paul Abrecht, who has been with the subunit since 1954. The subunit has a committee which prepares programme plans for approval by the World Council's Central Committee; this is the Working Group on Church and Society, and it is presently chaired by Charles Birch. As a subunit, Church and Society is bound by the WCC Constitution, and therefore may not issue any public statement without the prior approval of the Central Committee (or an Assembly).(4)

This means that the MIT conference has an official and bureaucratic history within the World Council, but that its historical background and theological endeavours are to be placed in the context of the ongoing Church and Society programme. Since the World Council's inception, the only other conference in that programme, comparable to MIT in size and scope, was that held in Geneva in 1966 on the theme 'Christians in the Technical and Social Revolutions of our Time'. This conference provides a natural starting point for an account of the background to MIT , though the evolution of the MIT conference theme itself must be traced through the broader regions of World Council social ethics.

This chapter aims to provide a historical and theological introduction to the MIT conference in the context of the Church and Society programme and beginning with the 1966 Geneva Conference. This is done in the first two sections, by tracing the evolution of the conference theme (Section 1) and the Church and Society programme and its theological characteristics prior to MIT (Section 2). The ecological theology of the MIT conference itself is then examined (Section 3).

This survey of the Church and Society materials will show that there are four main theological approaches represented therein during the period 1966-1979; they will be discussed in detail in Chapter Four.

1. The conference theme and its evolution.

The Fifth WCC Assembly at Nairobi (in 1975) authorised a continuing programme to explore 'the Contribution of Faith, Science and Technology to the Struggle for a Just and Sustainable Society'.(5) The Working Group on Church and Society outlined a programme of study and action on the scientific and technical problems and the ethical issues involved in the transition to a just, participatory and sustainable society, leading up to a world conference on this theme in 1979; this formed part of its proposed five-year programme for 1976 - 1981.(6) The new Central Committee gave its approval, adding that this conference was to be the main concern of the C&S subunit.(7) Such are the formal origins of the MIT conference.

The official theme of the conference was 'The Contribution of Faith, Science and Technology to the Struggle for a Just, Participatory and Sustainable Society'.(8) In this section, I attempt to trace the history of that theme in two parts. The first relates to the broader issue of the struggle for the just and participatory and sustainable society, and falls within the history of the World Council's social ethics; it is the subject of the first subsection. The second relates to the particular concern of the C&S subunit within that social ethic, namely the way faith, science and technology impinge on the achievement of that goal; this specialist subtheme is discussed in subsection (ii).

(i) The conference theme in the history of WCC social ethics.

Since its inception, the WCC has sought to define and articulate its conception of a better earthly society, compatible with Christian commitment and for whose realisation Christians should strive. It began with the goal of the 'responsible' society, but the current goal is the JPSS : the just, participatory, and sustainable society. This sub-section attempts to chart the transition.

The First WCC Assembly, at Amsterdam in 1948, formulated the concept of the responsible society. Such a society is

> 'one where freedom is the freedom of men who acknowledge responsibility to justice and public order and where those who hold political authority or economic power are responsible for its exercise to God and to the people whose welfare is affected by it.(9)

The concept of the responsible society was used there to present an alternative third course, between socialism on the one hand and laissez-faire capitalism on the other.(10) The concept itself is the brainchild of Joseph Oldham, and it is clear from his exposition of it that the responsible society depends upon an ethic of justice and the ideal of participatory decision-making.(11) The Amsterdam Assembly endorsed these:

> 'For a society to be responsible under modern conditions it is required that the people have freedom to control, to criticise and to change their governments, [and] that power... be distributed as widely as possible throughout the whole community. It is required that economic justice and provision of equality of opportunity be established for all members of society.'(12)

The theological heart of the responsible society is given in terms of a Christian understanding of man's nature:

> 'Man is created and called to be a free being responsible to God and to his neighbour.'(13)

The responsible society concept featured in the World Council discussions for the next twenty years, making its final appearance at the Fourth Assembly, at Uppsala in 1968. The Second Assembly (Evanston, Illinois, 1954) gave the concept a critical focus; it was not an alternative social system, but

> 'a criterion by which we judge all existing social orders and at the same time a standard to guide us.'(14)

The Evanston Assembly then set forth a series of criteria by which Christians could assess political institutions, and these criteria were subsequently endorsed by the New Delhi (Third) Assembly of 1961.(15) By then, the international climate had changed significantly. The East-West power-bloc conflict was still a powerful force in world politics, as it had been in 1948; but the concerns of postwar reconstruction had given way to those of economic development and the emergence of independent but politically inexperienced nation states.(16) The responsible society concept took on a global perspective.(17) Within these new nations, the need for government strong enough to promote healthy economic development, but in practice lacking the experience, traditions and structures that would facilitate such government, meant that the question of commitment to public order must be faced anew because it may conflict with the commitment to justice.(18) What Amsterdam had joined together new circumstances were putting

assunder. Thus, by the late sixties, several ecumenically-sponsored conferences had called for a review of the responsible society concept because the Amsterdam formulation seemed inapplicable and inappropriate in the new circumstances.(19)

The 1966 C&S conference in Geneva had used the responsible society concept, but began to substitute the humanum as an alternative concept; that is, the goal of social ethics was to be framed more explicitly around a theological understanding of man's nature, future and purpose.(20) The Uppsala (Fourth) Assembly noted this, and that there had been a convergence of interests in several WCC departments, relating to the nature and destiny of man. This led to the foundation of the Humanum Study.(21) At the time, it was hoped that C&S would participate in and benefit from this study. As it happened, it went in a different direction and is not particularly relevant to the MIT background; a parallel and complementary study within the C&S programme, the Futurum project, will be more important for my purposes and will be discussed in detail in section 2.(22) Historically, the Humanum study marks the first stage of the transition from the responsible society goal to that of the JPSS.

The reference to the criterion of the human represents a reformulation rather than a change of direction in ecumenical social ethics, occasioned by new economic, political and global circumstances. The Amsterdam definition had been based on a theological understanding of man, and the ethic of justice together with the ideal of participatory decision-making were both retained in the new approach.(23) Ecumenical social ethics was thus digging deeper, to the roots of the responsible society concept.(24) Justice and participation were regarded as essential to a society which did not thwart the full development of man that God intended for him at his creation.

The transition from the responsible society concept to that of the JPSS is therefore fairly smooth and self-evident, as it passes through the criterion of the human and the disappointment of the Humanum study to its present reformulation.(25) The only item which needs further explanation is the adjective 'sustainable': how did it enter ecumenical social ethics?

In the late sixties, ecumenical thought about science and technology included a great measure of enthusiasm about the opportunities they offered for human welfare.(26) The only concern about the world's resources related to their equitable distribution within the

human community, so that the resources for economic development would be available to all; in the case of scarce or diminishing commodities, there was a prevailing optimism that science and technology would be able to invent satisfactory substitutes.(27) The New Delhi Assembly had drawn attention to the need for an understanding of the relationships between God, man, and nature, but the subsequent Geneva conference approached only the social and economic implications of scientific and technological progress without calling its assumptions into question or attempting what New Delhi had called 'a theology of nature'.(28)

The ecological crisis helped call one of those economic assumptions into question. Economic growth could only be maintained within the global limits of resources available, and a policy of 'development for all' would lead to the collapse of the economic system. This undercut the traditional social justice ethic at its foundations, since it implied that plans for social revolution to be followed by ever-increasing economic development were 'at best problematic, at worst futile or destructive'.(29) Thus it was necessary to redirect social ethics towards a global society whose economic structure was in some sort of equilibrium with the world's resource capacity.

It was also necessary to consider the effects of contemporary action upon future generations, since it was realised that science and technology may improve the lot of the present generation by mortgaging the welfare of future generations to an unacceptable level. For example, a just and participatory society which depends upon a non-renewable resource such as petrol for the continuance of its structure will have its structure jeopardised if that resource is exhausted before a substitute can be invented or an alternative non-dependent social structure developed.(30) Justice and participation in future societies may depend on wise husbandry of resources by this generation, and intergenerational justice is inextricably linked to sustainability.(31)

The C&S world conference at Bucharest in 1974 drew these threads together and defined the 'sustainable' society as a long-term goal for social ethics:

> 'Once the material conditions of today's poor have been improved, the crucial objective will become the

> avoidance of forced regression (e.g. through the collapse of a highly stressed agricultural system) to a less desirable state. The goal must be a robust, sustainable society, where each individual can feel secure that his/her quality of life will be maintained or improved. We can already delineate some of the necessary characteristics of this enduring society. First, social stability cannot be obtained without an equitable distribution of what is in scarce supply or without common opportunity to participate in social decisions. Secondly, a robust global society will not be sustainable unless the need for food is at any time well below the global capacity to supply it, and unless the emissions of pollutants are well below the capacity of the ecosystem to absorb them. Third, the new social organisation will be sustainable only as long as the rate of use of non-renewable resources does not outrun the increase in resources made available through technological innovation. Finally, a sustainable society requires a level of human activity which is not adversely influenced by the never ending, large and frequent natural variation in global climate.' (32)

The sustainable society is therefore something of a utopia, and was consciously modelled on the utopian idea.(33) Its content is also similar to the concepts of 'global equilibrium' and 'equilibrium state' of the (first) report to the Club of Rome, which had helped to popularise the limits to growth thesis in secular debate when the report appeared in 1972.(34)

Following the Bucharest conference, the World Council's Central Committee proposed that C&S investigate 'the socio-economic and ethical implications of the idea of a sustainable and just society'.(35) After the Nairobi Assembly, the new Central Committee expressed its social ethic under the heading of 'The Struggle for the Just, Participatory and Sustainable Society', and authorised C&S to explore the ways in which faith, science and technology impinge upon that concern.(36) The World Council social ethic and the MIT conference theme thus achieved their final contemporary forms in 1976.

In accepting that the goal should include some concept of sustainability, the question was immediately raised, as to how concern for sustainability should relate to the traditional concerns for a participatory and just society. In case of conflict, where do the priorities lie?

The question of participation in a scientifically and technologically oriented society is vexed by the need for specialist information

about the foreseeable consequences and implications of proposed actions, and the existence and feasibility of alternatives. Thus vested interest may effectively control 'participatory' decision-making, by witholding information. This may result in extravagant use of resources, based on immediate economic expediency rather than concern for sustainability in the long-term. On the other hand, if the common will be that the standard of living (and therefore of resource consumption) be increased or maintained at a high level, as in the affluent nations, then full participation may jeopardise the achievement of sustainability. It may also jeopardise the achievement of justice, as the rich and powerful compete for an ever-diminishing supply of resources in order to secure their standard of living.

There is no easy and direct relationship between sustainability and participation. The possibility of open conflict between the goals of sustainability and justice makes the JPSS concept even more difficult. This conflict of priorities has erupted frequently in the ecumenical forum, and was given typically forceful expression at MIT in one participant's paraphrase of 1 John 4:20 —

> 'If you claim to be concerned about the unborn humanity that you cannot see, but show no regard for the humanity that you can see all around you, then you are a liar.'(37)

The long-term perspective is implicit in the sustainability goal and extends to future generations, but it adds a complicating factor to the relationship between sustainability and social justice.(38)

The Bucharest report had emphasised that sustainability had to be achieved in relation to a new measure of human solidarity and justice, and this link was later emphasised by Charles Birch in his address to the Nairobi Assembly.(39) The C&S Working group also linked the two, in its comment that

> 'A sustainable society which is unjust can hardly be worth sustaining. A just society that is unsustainable is self-defeating.' (40)

Nevertheless, the Nairobi Assembly asked that the relationship of sustainability to justice and participation be studied further, especially in the context of the continued rapid spread of science and technology throughout the world.(41) In 1977, the WCC Central Committee appointed an Advisory Committee on 'The Search for a Just, Participatory and Sustainable Society', which presented its report

to the Central Committee in 1979. It concluded that

> 'more clarity and fuller articulation were needed, especially regarding the sustainability aspect.'(42)

The report itself had given little attention to the sustainability concept, or its relationship to justice and participation.

Thus the complex of ideas associated with the sustainable society requires further elaboration and exploration in the World Council's social ethics.(43) One fact is clear from its definition in the Bucharest reports: that its foundation is the concept of humanum, a theological understanding of man's nature and dignity.(44) Its relationship with justice and participation is problematic, but it nevertheless shares a common foundation with those concepts, in Christian anthropology. This is confirmed by the Nairobi Assembly's guidelines for future programmes, in which the struggle for the just (participatory) and sustainable society is placed in the sphere of the struggle for true humanity:

> 'all programmes should be conceived and implemented in a way that expresses the basic Christian imperative to participate in the struggle for human dignity and social justice ... [The programmes] will have to acknowledge that in struggling for true humanity we are confronted with the power of sin and evil manifested in human injustice and oppression. [This guideline implies] the continued search for the foundation of a just and sustainable society, taking into account both the need for a new international economic order and the concern for self-reliant and participatory forms of development ...'(45)

In this subsection, I have shown how the social ethics of the World Council of Churches has passed through three provisional formulations: the 'responsible' society (Amsterdam, 1948), the humanum concept (Uppsala, 1968),and the subsequent Humanum Study), and the present concept of the 'just, participatory and sustainable' society (Nairobi, 1975). The concept of sustainability and its relation to justice and participation requires further exploration; though this need has been felt, the issues remain unresolved in the report of the JPSS Advisory Committee (1979). It has also been shown that the theological heart of the three provisional formulations of World Council social ethics has remained constant in expression, if not specific interpretation: A Christian theological understanding of man's nature, dignity, and destiny.

This places the social ethic part of the MIT conference theme in ecumenical and historical perspective. I turn now to the particular concern of the Church and Society subunit, namely 'the contribution of faith, science and technology' to the realisation of this ethical goal.

(ii) The MIT conference in the C&S context.

The World Council's concerns about the social implications of scientific and technological progress have provided the stimulus for the Church and Society programme since its inception. This has involved C&S in two extended investigative programmes, and two conferences on the grand scale.(46) This subsection will trace the development of C&S attitudes to and assumptions about science and technology, and show that the MIT conference is the conceptual heir of the Futurum project.

Ecumenical thought has long been concerned with the impact of industrialisation (science and technology) upon human existence. The Stockholm conference declared in 1925, that

> 'the soul is the supreme value [and] must not be subordinated to the rights of property or to the mechanisms of industry ... Therefore we contend for the free and full development of the human personality.'(47)

In this it was followed by the 1937 Oxford conference.(48) For the 1948 Amsterdam Assembly, J.H. Oldham prepared a study on 'Technics and Civilisation', and the Assembly itself listed 'undirected developments of technology' as one of the main factors contributing to the contemporary disorder of society.(49) The Rapid Social Change study (1955 - 1961) was concerned with social change per se, with particular reference to the problems of the underdeveloped nations. Though not directly concerned with science and technology, this study took up the allied theme of economic expansion; the transference of western technology and capital was seen as the most effective means of achieving economic development in the developing countries. Resources are there for the using, provided by God for the appropriate use of science and technology to improve the quality of human existence; one conference report states that

> 'it still remains true that it is proper for man to glorify God in the use of the riches of the earth ... To make use of what we have for widening the opportunities before us and for searching out God's will is, we believe, to please Him,'

and states that, in the matter of economic development, the most

important means to a more equitable distribution of wealth is a more thorough use of the world's resources.(50) The subsequent New Delhi Assembly was unable to cope with all the issues raised by the Rapid Social Change study, and suggested the need for further ecumenical analysis and consultation. It also took up the problematic connected with nature, the natural sciences and technology, stressing the significance of scientific discoveries as an aspect of man's dominion over nature; it also regarded the task of developing a 'theology of nature' as important.(51)

The C&S Geneva conference of 1966 was therefore part of a long heritage of concern and investigation. The concern, however, was with the social impact of science and technology, and how they may best be directed towards human welfare. It was accepted without question that scientific and technological progress, rightly directed and organised, was God's way of providing the abundant life for all mankind, and was automatically beneficial. The only problem was to determine how they could be 'rightly directed and organised' in practice.(52)

Following the Uppsala Assembly, C&S was authorised to embark upon a five-year study programme, on 'The Future of Man and Society in a World of Science-based Technology', the Futurum project.(53) It began with the inherited confidence that science and technology could make a positive contribution towards the achievement of the WCC goal in social ethics, if properly harnessed to the needs of development. This optimism was qualified during the course of the programme, receiving its first shocks at the opening conference of the Futurum project, held in Geneva in 1970.

The third world participants at that conference charged that technology transfer reinforced the political, economic and technological dependence of the recipients. The obverse to this claim is that science and technology, in conjunction with the structures of international economics, may provide the means to maintain the dependent in their dependence; in the extreme, they become weapons of oppression and exploitation.(54) That conference also recognised that science and technology are ideologically based, rather than independent value-free enterprises. Thus one of the working groups called for

> 'the examination of the ideological presuppositions and the interests served by the systems of technology in modern society, so that we may be clear

> about the function they serve and the limits within which their rationality operates'.(55)

This means that science and technology are now seen to have feet of clay: it cannot be assumed that the contribution they make to any society will be automatically positive, but instead their social effects and costs must be constantly monitored and carefully assessed.

Another qualification to the inherited optimism came from the scientists and technologists themselves, as they drew attention to the risks and the ethical dilemmas inherent in their progress in the foreseeable future.(56) In 1970, the C&S head wrote of 'the new awakening of the physical scientists to the social and human consequences of their work', and this was probably one of the many factors that enabled C&S to involve a number of scientists (not necessarily sympathetic to the Christian cause) in the discussions associated with the Futurum project.(57) The 1970 Geneva conference reflected the contemporary scientific mood, as the ecologist John Black, chemical engineer Frederick Knelman, and biologists Ernst von Weizsäcker and Charles Birch demonstrated.(58) The next event in the Futurum project, the 1971 meeting at Nemi (Italy), reported that

> 'The changing pattern of scientific work, the widespread suspicion of the power of science, the great dependence of modern society on science and technology and the awakening conscience of many scientists all combine to highlight the need for not leaving the scientists alone. An increasing number of scientists ask not to be left alone and seek help in defining their responsibility in shaping the society of today and in the future.'(59)

This concern about the social responsibility of scientists, evidenced in the scientific community itself, shows a marked change from the inherited optimism about scientific and technological progress. In the Amsterdam definition of the responsible society, the only question marks had been over those who exercised political and economic power; now there was a new and unexpected question mark over those who exercise control over the direction of scientific research and the uses of technology.

The questions about social responsibility of scientists, the ethical dilemmas posed by their achievements (actual and potential), and the ideological basis and ramifications in international economics of the whole scientific-technological enterprise, remained as persistent concerns throughout the C&S programme. They underlie the

Working Group's five year plan for 1976 - 1981, the planning for the MIT conference, and its deliberations.(60)

As noted above, one of the working groups at the 1970 Geneva conference had called for an examination of the ideological presuppositions served by technology. In response to this call, an ecumenical working party was convened at Zurich in July 1973; its report was titled 'A Theological Critique of Scientific Rationality'. This working party considered that the main issues were the relation of theology to ethical decision-making, criteria for measuring the quality of life, and social justice in relation to the eschatological future. It did not grasp the nettle and attempt a critique of scientific rationality, nor address the issues of 'dialogue' between science and theology, in spite of a significant theological evaluation of technology by Langdon Gilkey.(61) The concluding conference of the Futurum project, at Bucharest in 1974, was however quite specific in its call to address these very issues:

> 'Because of the ecological crisis and its destructive effects on social justice throughout the world, science and technology as well as theology are challenged to proceed with self-examination, to find new approaches. ... [We therefore call for] a further study programme on "rethinking theology" ... [which] will involve a creative dialogue between theologians, scientists and philosophers of science...'(62)

The following year, C&S convened a consultation in Mexico City, in cooperation with the Commission on Faith and Order. Its theme was 'Christian Faith and the Changing Face of Science and Technology'.(63) A few months later, the Nairobi Assembly spoke of the 'encounter' of science and faith, in terms of new ethical challenges on the one hand, and the necessity for dialogue on the other; it stated that theology needs to work out a doctrine of creation which incorporates the valid insights of modern science into the nature and structure of the created order.(64) This concern for a dialogue was reflected later in the C&S proposal for its 1976 - 1981 programme.(65) It also appears as one of the specific concerns in the planning for the MIT conference, which devoted two plenary addresses and one section report to it.(66)

It is evident from the foregoing that 'the contribution of faith, science and technology' to the wellbeing of any society (let alone the achievement of the JPSS goal) is a large and complex issue, which has

been the mainspring of the C&S programme since the beginning of the Futurum project. It now remains to show that the MIT conference is the conceptual heir of the Futurum project.

Paul Abrecht stated in the preparatory material for the Bucharest conference that the Futurum project had already pushed ecumenical thought in four new directions:

> '(1) an evaluation and interpretation, in ethical perspective, of the present debate on the limits to growth with the implications for the right use of the environment and resources; (2) [the implications for social justice of this new situation]; (3) the meaning of new scientific and technological discoveries for the quality of life ... (4) the need for a new theological critique of scientific rationality, and a new understanding of Christian doctrine concerning the relation between man and nature before God.'(67)

These directions focussed the attentions of the working groups at the Bucharest conference, and are developed in the conference report.(68) The report, representing the conclusion of the Futurum project, was presented to the WCC Central Committee which received it enthusiastically and urged that it be circulated widely for study and discussion, with the Nairobi Assembly in view. It also requested C&S to highlight issues which had emerged during the course of the project, so that the Assembly could include them in its consideration of future programme directions.(69) The Assembly consequently directed the C&S programme to explore the contribution of Christian faith, science and technology to the struggle for a just and sustainable society, highlighting the ethical encounters between science and faith, and the ethical problems involved in the transition to such a society.(70) Abrecht's four directions had been condensed into two, but when the C&S Working Group met in 1976, it revised the four in the light of the JPSS concept.(71)

The five-year plan for the C&S programme, put forward by that meeting, included a proposal for what eventually became the MIT conference. It is no accident that the MIT conference planning committee structured the conference programme around the following four themes:

> '1. The relation between science and faith as forms of human understanding and the role of faith in determining the right use of science and technology.
> 2. The analysis of ethical problems resulting from present and prospective developments in particular areas of science and technology.

> 3. The economic and political problems relating to world resource use and distribution, and the more equitable sharing of science and technology.
> 4. The new expressions of Christian social thought and action, which are both attentive to the promises and threats of modern science and technology and engaged in the search for a just, participatory and sustainable society.' (72)

Comparison with Abrecht's 'four new directions' shows a perfect correlation.

It is also noteworthy that the preparatory volume for the MIT conference was titled Faith, Science and the Future, and that this shorthand was given semi-official status as the conference theme. (73)

It suggests that the planning committee were conscious that they were continuing and developing the Futurum enquiry, at least in spirit.

This subsection has placed the specialist subtheme of the MIT conference theme, namely 'the contribution of faith, science and technology', in the context of the C&S programme generally and of the Futurum project in particular. This section, taken in its entirety, traces the conference theme and its evolution, and therefore provides a historical introduction to MIT. The aim of the next section is to provide a theological introduction, by looking at the theological emphases in the C&S programme from the 1966 Geneva conference onwards.

2. A theological introduction to the Church and Society Programme, 1966 - 1979.

The preceding section placed the MIT conference theme in the context of the World Council's concerns in social ethics and the C&S special concerns about science and technology. It showed that the MIT conference was the conceptual heir of the Futurum project of 1969 - 1974. This present section aims to provide a theological introduction to the MIT conference, by looking at the tendencies manifest in the Futurum project and the C&S programme subsequent to the Nairobi Assembly. This is done in five subsections. The first gives a history of the main events from Geneva 1966 to MIT, and the second summarises the results of a recent analysis of the Futurum project by the Finnish theologian Martti Lindqvist. The third subsection presents a refinement of Lindqvist's results, and the fourth extends the survey period beyond 1975. The final subsection attempts to relate the material of its predecessors to my general theme of ecological theology.

(i) Main events in the C&S programme.

This subsection sets the historical background for the theological analysis to follow. My concern in this subsection is to trace the history of and some of the influences in the C&S programme.

The roots of the Futurum project lie in the 1966 Geneva conference and the 1968 Uppsala Assembly.(74) Following the Assembly, the Working Group on Church and Society presented a prospectus to the WCC Central Committee at its meeting in August 1969, which outlined the purpose and shape of the new project on 'The Future of Man and Society in a World of Science-based Technology'. Its concern was expressed as follows:

> 'Whilst science-based technology and the ability to predict on the basis of it grow rapidly, the ability to use it for agreed social purposes grows much more slowly and the necessary change in social institutions and structures comes slower still. People lack the basic information as well as the ethical criteria for making responsible choices between the new options which technology makes possible.'(75)

A three-phase approach was suggested, setting out from a description of technical progress and its influence, proceeding to evaluation, and then finally to the organisation of appropriate ecumenical responses. Special mention was made of the problems peculiar to highly developed

scientific-technological communities (pollution, the arms race, urbanisation, and genetic technology, inter alia).(76) The project was therefore committed to a high level of participation from specialists in science and technology, in order to make decisions on the basis of accurate and pertinent information. In practice, this specialist participation continued throughout the project and was not confined to its early description-oriented stages.(77)

The project got under way with a meeting of experts in Geneva in 1970, whose task was to outline the central problem areas and set priorities for their investigation.(78) In the light of this conference, it was decided to focus on three themes: 'Science and the Quality of Life', 'Political and Economic Choices in a Technological Era', and 'Images of the Future'. The C&S Working Group met in Nemi (Italy) in 1971, to plan the next steps in the project. Thirty distinguished scientists joined the theologians and others who participated in this meeting, which issued three reports, one on each of the above themes.(79)

The project then split into two concurrent approaches. One was regionally based, designed to relate the total enquiry to the problems of particular regions. Three conferences were held: in Accra (Ghana) for the African region: in Kuala Lumpur (Malaysia) for the Asian region; and in Pont-à-Mousson (France) for the industrialised nations of Europe and North America.(80)

The other approach consisted of a number of specialist consultations on pertinent themes. In 1972, the World Council's representation to the United Nations' Conference on the Human Environment at Stockholm was organised by C&S as part of the Futurum project.(81) At Cardiff, Wales, there was a specialist consultation on 'Global Environment, Economic Growth, and Social Justice'. In 1973, there were two consultations in Zurich, the first on genetics and the quality of life, the second on the theological problematic of the Futurum project. That year, there was also an enlarged meeting of the C&S working Group, which prepared a paper on population policy in view of World Population Year 1974.(82)

Two books were published in connection with the Futurum project. The first was prepared by Thomas Sieger Derr at the request of the Working Group, and appeared in 1973: Ecology and Human Liberation, A Theological Critique of the Use and Abuse of our Birthright.(83) This book stimulated intense discussion, drawing rejoinders from several

process theologians.(84) The Orthodox theologian Paul Verghese also prepared a rejoinder, which was completed in manuscript in February 1974 but was not published until 1978: the manuscript was titled The Human Presence, Reflections on the Role of Humanity in an Evolving Universe. (85) These books are the subject of special study in Chapter Four below, in sections 2 and 5 respectively.

The Futurum project then concluded with a world conference at Bucharest (Romania), titled 'Science and Technology for Human Development — The Ambiguous Future and the Christian Hope'.(86) The report of this conference was presented to the Central Committee, who received it enthusiastically and, in effect, endorsed the continuation of the Futurum project. After the Nairobi Assembly had added its endorsement, the C&S programme was then designed to extend the project and to hold a world conference as part of its deliberations.(87)

Thus there were more specialist consultations, leading up to the MIT conference. There have been two consultations on science and theology at Mexico City (1975) and Cambridge, England (1978); two on nuclear energy, at Sigtuna, Sweden (1975) and Céligny, Switzerland (1978); one consultation on energy for a just and sustainable society, at Glion, Switzerland (1976); one on political economics, ethics and theology, at Zurich (1978); and one theological consultation on 'Humanity, Nature and God', at Zurich in 1977.(88)

The new chairman of the C&S Working Group, Charles Birch, published Confronting the Future in 1975, and Verghese's Orthodox rejoinder to Derr's book appeared in 1978.(89) These two books were not sponsored by C&S directly, but were nevertheless written by people closely associated with its work as part of their personal contributions to its ongoing programme. They represent part of the background to the MIT conference.

During the period under review, the C&S programme has been both diverse and intense, and the MIT conference reflects this background. It would be another thesis to analyse the whole of the Futurum project in detail, let alone extend the analysis to the whole of the 1966 - 1979 programme. Fortunately, some of the work on the Futurum project has already been surveyed; the results of that survey will be described in the next subsection, modified in subsection (iii), and extended in subsection (iv).

(ii) Martti Lindqvist's analysis of the Futurum Project.

In his survey Economic Growth and the Quality of Life, An Analysis of the Debate within the World Council of Churches, 1966 - 1974, Martti Lindqvist is addressing the social, ethical, and economic issues which are bound up with the theological problematic of man's relationship to nature. This problem comes to particular prominence in the Futurum project, and is the subject of special study in his survey.(90) Lindqvist has undertaken a thorough survey of the project, extending to the papers presented to the various conferences, the conference reports, minutes of Working Group and Central Committee meetings, other relevant World Council documents, and documents from the contemporary secular debate.(91) It therefore presents an authoritative foundation on which my own analysis can be built according to the orientation of my theme. This subsection presents Lindqvist's results in summary form, preparatory to later use.

Lindqvist's own summary evaluation of the C&S programme from 1966 - 1974 is that

> 'the ecumenical community has taken a remarkable initiative ... in opening the dialogue with the world-wide scientific community. [It] has in some respects had more success than was expected. Representatives of the social and natural sciences as well as economists have shown great willingness to participate in this exchange, chanelling both their knowledge and their moral concern to the ecumenical forum ...' (92)

For this achievement, the WCC and Church and Society in particular must be congratulated.(93) Nevertheless, Lindqvist has several fundamental criticisms to make of the programme in general, as follows:

1. The theological discussion on the man-nature theme is by nature reactive, in that it is problem-centred, concerned with discerning theological implications and solution models from non-theological situations. Basic concepts such as 'economic growth' and 'quality of life' have been taken over directly from the contemporary social debates, and the 'sustainable society' concept relates very closely to the concepts of 'global equilibrium' and 'equilibrium state' used by the Club of Rome report. There is therefore a common set of concepts which facilitates dialogue with society, but it has also led to theological diversity and imprecision. This problem-centred approach has also led to discontinuity in the project, as different theological

approaches have been applied to different problems, but the Futurum project has failed to integrate these into one single holistic response.(94)

2. The material is mainly descriptive of the world situation and its problems, setting out various research results, theories and statistics — though this is more evident in the background papers than in the reports. This has been part of the conscious effort at inter-disciplinary ethics and theology, but it has yet to bear fruit. There is no evidence of a single larger conference where the method of dialogue between theologians and lay specialists has 'worked'.(95)

Thus, from Lindqvist's survey, the World Council's debate on economic growth and the quality of life (and therefore the background to its search for the just, participatory and sustainable society) has been hampered by its inability to form concepts and to integrate diffuse theological approaches, as well as the failure of its dialogues with specialists. With regard to the Futurum project particularly, Lindqvist continues:

> 'If the project is evaluated against the methodological solution advocated by the Zagorsk Consultation [in 1968] the work now concluded must be held as but the first stage in the ecumenical undertaking on these questions ... Completion of the discussion requires (1) a systematic and holistic theological evaluation of the material collected and (2) an ecumenical consensus when these questions appear ... on the agenda of representative ecclesiastical bodies.'(96)

Lindqvist discerns three main theological approaches in the C&S reflection on man's relationship to nature, and these will be discussed below. Two traditions are conspicuous by their absence from this list, the Roman Catholic tradition and the biblical theologians.(97) The latter are allegedly represented only once, by Joseph Sittler at the 1970 Geneva conference. This may only conceal a question of terminology, since Derr's book may be regarded as 'biblical theology' even though Lindqvist classifies it elsewhere.(98)

The three main approaches Lindqvist discerns are 'the traditional Western theology of history', process theology, and Orthodox theology.

The 'traditional Western theology of history', emphasises man's uniqueness in his relation to the rest of creation, seeing the basic distinction betwenen man and nature in the radically historical character of human existence.(99) In the early sixties, this was

represented in ecumenical circles by Arend van Leeuwen, and at the 1966 Geneva conference by Richard Shaull and Harvey Cox.(100) During the course of the survey period, Lindqvist observed that the qualitative distinction between man and nature was still stressed, but that more emphasis was laid on the fact that biologically man is part of nature and fully dependent on it.(101) Alongside the ethic of responsible stewardship, increasing emphasis was laid on the openness of the future, thus underlining man's responsibility for the quality of his own future and that of the earth as well. But despite these shifts in emphasis, Lindqvist says that

> 'the radical historicisation of man's existence and the interpretation of nature in the light of man's emancipation have been maintained as the central factors in the debate.'(102)

I believe that this category of Lindqvist's needs refinement, and this will be undertaken in the next subsection.

Process theology has gained a foothold in the deliberations of the Futurum project, partly through the influence of the biologist Charles Birch.(103) This approach sees the very essence of nature as history, as a series of processes and 'events' in time and space. It emphasises that there is a qualitative as well as a biological continuity between man and nature; man is at the top of a hierarchy of rights and values apportioned according to sentience, and the existence of this hierarchy provides a basis for ecological ethics.(104) Though the process theology approach has been vigorously advocated during the latter part of the Futurum project, no conference report endorses its approach.(105) Its basic solution concerning the value of nature had already been rejected implicitly in the reports of the 1973 Zurich working party on scientific rationality, and the Pont-à-Mousson conference.(106) The advantages and disadvantages of the process theology approach will be argued in Chapter Four (section 4) below.

The main Orthodox contribution to the Futurum project has come from the Indian Paul Verghese.(107) He rejects any attempts to make a qualitative distinction between nature and history, since they and God are not three distinct entities with definable boundaries, enabling one to be separated from the others and considered in isolation.(108) Verghese evaluates nature sacramentally, and proposes a 'reverent-receptive attitude to nature' as a necessary corrective to the objectifying and analytic attitude which characterises science and technology.

This, together with an analogical application of the doctrine of the Trinity to the doctrine of creation, was particularly influential in the theological section of the Bucharest report.(109) The advantages and disadvantages of the Orthodox approach, as expounded by Verghese, will be argued in Chapter Four (section 5) below.

The viewpoints of Verghese and the process theologians coincide in their emphasis on the qualitative continuity between God and nature.(110) As implied above, however, their combined influence has not been strong enough to replace the traditional Western theology of history.

Lindqvist also pays some attention to the theological evaluation of technology, and to the dominium terrae tradition.(111) The moral ambiguity inherent in technological progress has received increasing emphasis, which in its turn has led to a more sanguine estimate of technology's value as an instrument of human liberation.(112) The project has not denied the value of technological progress per se, but has attempted instead to reinterpret man's responsibility for nature in the light of his capacity for technological manipulation and control of nature. This is the ethical correlate of the traditional Western theology of history approach. Lindqvist notes four ways in which the dominium terrae tradition has been approached:

First, man has been called to rediscover his responsibility for nature before God, and eschew irresponsible technological triumphalism. This responsibility extends to future generations as well as to contemporaries, since failure to bequeath them adequate living conditions is a sin against fellow humanity.(113) Second, a 'companionship' ethic has been proposed, which calls for an 'appropriate' technology; that is, one which is non-violent, following the processes of nature and adapting itself to them.(114) This companionship ethic emerges in the Bucharest report, when it points out that

> 'we are passing from an attitude of power, of mastery over creation, to one where we need to participate in it, live within its midst, hold it in respect.'(115)

A third approach relates dominion to reconciliation and service, though this has been an isolated contribution within the Futurum discussion.(116) The fourth and final approach rejects the stewardship concept as inadequate. This rejection, by Verghese,

> 'questioned the validity of the theological framework applied for the most part during the Futurum project in deliberations on environmental issues: the concept

> of stewardship, the distinction between nature and history as well as nature and man.' (117)

For the most part, however, the Futurum project materials have attempted to reevaluate and correct old theological interpretations rather than formulate consistent new ones. Thus Verghese and the process theologians were swimming against a strong stream.

Lindqvist does not address the question as to why the 'traditional Western theology of history' should have achieved such influence in the Futurum project, but an answer may be inferred from his account. The project was committed to the method of dialectical interaction and interdisciplinary cooperation. This lends a conservatism to its theological reflection, brought about by the pressures of the conference situation and the need to produce a consensus report. There is no time to develop consistent new models in response to the specialist detailed information imparted at the conference, so that the reports tend to be commentaries from existing theological positions.(118) Within the Futurum project, this tendency has been exacerbated by the marked lack of continuity of personnel and theme from one conference to the next; each meeting had an identity of its own, and tackled its issues independently of the other meetings in the project.(119) This explains why no new theological position was developed within the project, and why the traditional approach represents the theological continuity in the project. That it is a traditional Western view follows from the fact that the Futurum project has been markedly western in its centre of gravity, in its concern for the problems of industrialised nations and its under-representation of socialist countries and certain parts of the Third World such as Latin America.(120)

Lindqvist's survey only covers the years to 1974, so I will need to extend the survey from the Bucharest conference up to MIT. This will be done in subsection (iv). The next subsection attempts to elucidate (and then to modify) one of Lindqvist's important theological concepts.

(iii) The concept of a 'traditional Western theology of history'.

In Lindqvist's survey of the C&S programme from 1966 to 1974, the theological approach which figures most prominently in the programme is one which he designates a 'traditional Western theology of history'. My present aim is to determine more specifically the character of that approach. As it stands in his survey, his concept is too broad and

requires subdivision, into an 'emancipatory' approach and an approach based on a theology of hope. This subdivision will permit more meaningful discussion of the C&S programme in the next two subsections.

At the end of his exposition of the traditional Western theology of history, Lindqvist cites three features as common to that theological approach, namely:

> '[an insistence] on man's distinctive position in the whole of nature, interpreting the value of nature from an anthropocentric aspect. Secondly, there is in the sources a line of interpretation which emphasises man's emancipation — mainly in the context of the development dilemma. Thirdly, the future is seen as an open process where man has the responsibility for choice between hope and disaster.' (121)

Of these features, the Orthodox would accept the first and third, interpreted appropriately. Process theologians would accept the third as fundamental, but perhaps add the codicil that God will salvage what good he can from the wreckage consequent upon man's free decisions.(122) This raises the question as to what separates the traditional western theology of history from these other approaches, and puts one question mark over the adequacy of Lindqvist's concept.

There is a question mark over the accuracy of his terminology as well, for his exposition of the traditional western theology of history includes as exemplars other approaches which cannot be described as 'traditional Western'. For example, Lindqvist cites Richard Shaull and the 'theology of revolution'.(123) Shaull is a North American whose theology has been strongly influenced by Arend van Leeuwen, and his theology may be described as a theology of history and its development. But the dominant perspective is Latin American protestantism of a more radical variety, a perspective whose origin lies in his twenty years experience as a missionary, pastor and teacher in Colombia and Brazil.(124) Shaull is not 'traditionally Western'. Neither is the Indian economist M.M. Thomas, who interpreted history as a three-fold process of liberation from enslavement to nature (through technological mastery), from exploitation and oppression, and from bondage to past history via the 'open future'.(125)

Thus Lindqvist's category is under suspicion because it is too inclusive; in fact, it is ambiguous and ill-defined. In order to discern the positive and distinctive character of his concept, it is

necessary to refer to the only formal definition of it, which he gives in a footnote. The term 'traditional Western theology of history'

> 'is not an established expression in theological terminology. In the context of this study, it is used to express the traditional theological approach common in the Western Christianity, which sees the basic distinction between man and nature in the radically historical character of human existence (Geschichtlichkeit). ... [See] Altner [Schöpfung am Abgrund], 86 - 119; Faith and the Order Studies ['God in Nature and History'], 9-11, 14-16, 21-22, 26-27. This approach can be illustrated by the following: "The God who historicises human existence frees man from entangling bondage to the powers of nature, and calls him to come of age and to become the master of the powers whose slave he previously was" Faith and Order Studies p.26 .'(126)

Here it appears that the qualifiers 'traditional' and 'Western' play a substantial part in the definition of the concept, but which its subsequent exposition belies. Instead, the exposition makes it clear that the point at issue is not the tradition or the westernness, but the theology of history in relation to a particular theological evaluation of nature. This explains the references made in the definition to the study 'God in Nature and History' and to the chapter of Altner's book which is concerned with the secular debate about nature and history. (127)

Lindqvist's exposition of the traditional western theology of history draws most upon Cox's contribution to the 1966 Geneva conference and upon Derr's book. (128) The course of his exposition suggests that the following four emphases serve to characterise the traditional western theology of history:

(1) the radically historical character of human existence as the basic distinction between man and nature;(129)

(2) the future as an open process, in which man has the responsibility to choose between hope and disaster;(130)

(3) nature as demythologised and therefore made available to man for his purposes, though man is answerable to God for his stewardship of nature;(131) and

(4) man's emancipation from nature through science, technology and economic development. (132)

Since Lindqvist's terminology is misleading, I would like to replace it by one which highlights (4), the most distinctive of the

four characteristics. I therefore propose to substitute the term 'emancipatory approach' for the 'traditional Western theology of history' approach. In Lindqvist's estimation, Derr's Ecology and Human Liberation epitomises this approach, and so I have selected it for examination in the next chapter.

Lindqvist's account of the emancipatory approach poses further questions. He comments that there was an open conflict at the 1973 Zurich working party, allegedly concerning Derr's emancipatory approach and rejecting process theology; at that consultation, the approach arising from the theology of hope was found fruitful in examining the relation between man and nature.(133) It is possible that there was another area of disagreement, between those who espoused a thoroughgoing emancipism (Derr) and those who leaned more to 'hope' (Langdon Gilkey). This suspicion is given further plausibility by Lindqvist's estimate of the Bucharest conference, which

> 'evidenced the failure of the Western theology of history to answer the problem of the relation between man and nature in the context of the Futurum project. The theological section of the conference sought new solutions to the question mainly on the basis of Orthodox theology.'(134)

At Bucharest, the theological power in the Western tradition was Gilkey rather than Derr.(135) He espouses a theology of hope which does not emphasise man's emancipation from bondage to the irrational powers of nature.

Lindqvist has included this 'theology of hope' within the emancipatory category.(136) On the evidence of the Zurich working party and the Bucharest conference reports' use of the 'hope' approach, it is necessary to ask whether the 'hope' approach should be separated from the emancipatory. For example, the Zurich report marks a turning point for the status of the emancipatory approach, since it questions its basic assumptions — the distinction between human and non-human on the basis of human history and man's supposed emancipation from bondage to nature were both challenged by the awareness of man's fundamental dependence upon nature and the limits that dependence imposes. The working party concluded that theological discussion generally requires an entirely new orientation which will relate nature and history (which are divorced in the emancipatory approach).(137)

Within the working party proceedings, Gilkey had presented a paper which questioned technology's instrumental value in achieving man's

emancipation, either from human oppressors or from nature.(138) He claimed that technical progress, if emancipatory, was only ambiguously so; this

> 'is only to admit the humanity of science and technology; that despite their creativity and glory, they too are partial and relative, subject to misuse, [potentially] creative/destructive or destructive/creative ...'(139)

He then argued strongly that

> 'our technological control over our environment and over others threatens to become a "fate" that controls and determines us.'(140)

It could be claimed that this is an individual's contribution, isolated within the project and not representative of it. But this has been a very influential individual; he chaired the Zurich working party, and drafted one part of the theological section of the Bucharest report.

There are thus good grounds for separating the emancipatory approach and the 'theology of hope' approach, and stating that the Zurich working party of 1973 marked the turning point in the project, from emancipism to 'hope'. The 'Western' theologians at Bucharest were therefore looking beyond emancipation to consider what Christian hope may mean in a technologically dominated society.(141)

This separation of the two approaches requires that the character and enduring significance in the C&S programme of the theology of hope be examined. The question of its persistence is (necessarily) deferred to the next subsection, in which the later period of the C&S programme is surveyed. The remainder of this subsection determines the characteristics of the theology of hope espoused in the later stages of the Futurum project.

The theology of hope approach is epitomised by that portion of the Bucharest report drafted by Gilkey.(142) The concern there

> 'is with the Christian hope for the historical future in the light of technology and science, not forgetting that such "temporal" hope is grounded in the transcendent.'(143)

In the section titled 'Hope for the New Life', five characteristic emphases may be discerned, in which the ultimate gives meaning to the penultimate, and the christological gives meaning to the historical: (1) history is not meaningless, but derives its meaning from the eschatological and ultimate purposes of God in creation and redemption;

(2) history remains open to man, since every situation includes new possibilities given by God for the creative transformation of the present;

(3) the suffering and death evident in history are overcome in Jesus Christ, who is the foundation of man's hope for new life;

(4) the central symbols of promise (the Kingdom of God, the New Jerusalem) orient us towards a new life and a new age in the future; and

(5) there will be both continuity and discontinuity between this age and the next, but the existence of elements of continuity directs human enterprise towards discerning them and then striving to realise the eschatological goals they indicate for and in proximate historical existence.(144)

I will take these characteristics as the desiderata of the theology of hope approach. The first two characteristics show that it has some common ground with the emancipatory approach, and explains why Lindqvist combined the two approaches into the single 'traditional Western theology of history' approach. Both are theologies of history, but from different perspectives. The key to the emancipatory approach is the biblical concept of dominion, and that approach looks backward to the mandate given at creation; whereas the key to the 'hope' approach is the eschatological goal of the Kingdom, for whose realisation human dominion has partial instrumental value. This difference in perspectives gives a sound theological reason for separating the two approaches, and complements the historical argument for the separation given above.

In summary: this subsection has shown the need for further clarification and precision in Lindqvist's theological analysis, particularly with regard to his concept of the 'traditional Western theology of history' and its differentiation from the other theological approaches influential in the C&S programme from 1966 to 1974. I have substituted the term 'emancipatory' for 'traditional Western theology of history', and selected Derr's Ecology and Human Liberation for special study as the exemplar of the emancipatory approach. The emancipatory approach was questioned at the 1973 Zurich meeting, and replaced by a theology of hope at the 1974 Bucharest conference. The character of this latter approach has been outlined, and its survival in the later stages of the C&S programme will be examined as part of the next subsection.

(iv) The consultation on 'Humanity,Nature and God', Zurich,1977.

Since Lindqvist's survey period ceased with the 1974 Bucharest conference, it is necessary to attempt an extension of that survey into 1979, to ascertain how the theological approaches have survived and/or been modified, and whether any significant new approaches have emerged in the C&S programme. Though the source material extends (theoretically) from late 1974 to mid-1979, the only significant primary source for my ecological theology theme is the 1977 Zurich consultation. Hence the title of this subsection, which examines the Zurich consultation in the light of the main theological approaches already evident in the C&S programme.

The main events in the C&S programme were listed in subsection (i) above, and the period since Bucharest stands out as a time of specialist conferences exploring themes and issues which had emerged from the Futurum project. Apart from the MIT conference, considered in the next section, the only two exceptions are the publication of Birch's book Confronting the Future, and the WCC Fifth Assembly at Nairobi. The Assembly failed to tackle in depth the issues which the Futurum project (and the Bucharest conference in particular) had raised. Instead, it endorsed and reiterated the more urgent ethical concerns without deeper theological reflection — in spite of Birch's challenging address.(145) Of the specialist conferences since Bucharest, only one has devoted much attention to the issues of ecological theology per se. The others have confronted particular ethical concerns (nuclear energy, genetic experimentation) or theoretical considerations (science and theology dialogue, the JPSS theme), but have not given direct attention to ecological theology.(146) The source material for my analysis of ecological theology within the C&S programme from Bucharest to MIT is rapidly narrowed down to the materials associated with the theological consultation on 'Humanity, Nature and God', held at Zurich in 1977. These have been reprinted in no.25 of Anticipation, and include the following:

(1) the report of the consultation, pages 22 - 39;
(2) papers presented to the consultation, pages 40 - 68; and
(3) a commentary (by the Working Group) on both this report and the report of the Cambridge, England, consultation about science, pages 69 - 73.(147)

The papers reprinted are by two Protestant biblical theologians, Klaus Koch and John Austin Baker; two process theologians, Charles Birch and no less than Charles Hartshorne; and Paulos Gregorios (i.e. Paul Verghese).(148)

In its introduction, the report states that it deals 'primarily with the human control of nature', but this is misleading. Later in the introduction it states that

> 'we urgently need a new vision that will motivate and guide the concern for a sustainable, just and controllable world.'(149)

It is really the search for a new vision that controls the report, and the process theologians have ensured that their approach receives a measure of attention and prominence that it failed to achieve during the Futurum project. Other theological approaches are represented in the report, but its theological heart (sections II and III) consists of two approaches, juxtaposed, but with no attempt at synthesis or recognition of significant divergence.(150) The two approaches are those of process theology in section II, 'Underlying Conceptual Issues', and the Protestant orientation of Koch and Baker in section III, 'The Biblical Interpretation of Nature'. Gregorios' approach is barely perceptible in the report, which is in contrast to the strong Orthodox influence at Bucharest. (151)

Since both the process theologians and Gregorios were represented at Zurich, the only theological 'unknown' is the approach adopted by Koch and Baker. Do they agree? And, if so, do they continue the Bucharest theology of hope or do they introduce a new theological approach? They do agree, and they espouse the Bucharest theology of hope.

Koch's paper is a specialist paper, based on the analysis of three types of Old Testament text: the Yahwistic pre-history, the Priestly pre-history of Genesis 1 and 9, and apocalyptic. His topic is 'The Old Testament View of Nature', and he challenges the assumption that the 'very kerygma of the Old Testament' is that there is an unbridgeable gap between God and creation/nature. His conclusion is that, as far as the OT authors are concerned,

> 'there is no human history that is separated from the history of nature. ... [If] they speak at all of revelation and the relationship between God and man in

> terms of history, that history is about the fate of mankind in relation to the fate of the world.'(152)

Baker's paper is a survey paper which attempts to describe and interpret the views (plural) of nature found in both Testaments. Koch and Baker agree in their interpretations and the inferences drawn when they are discussing the same texts, but Baker's paper obviously goes far beyond Koch's in its development. It is Baker's paper which provides the backbone for section III of the report, which incorporates whole passages verbatim.

Much of Baker's material is standard in contemporary biblical scholarship — for example, the use of the kingship motif to interpret the dominion concept, with a concomitant emphasis on the exclusion of exploitation from the ideal of kingship.(153) In the context of the C&S programme, what is theologically new is Baker's use of the Wisdom tradition to justify a pragmatic science-based (natural law) ethic. It is an Old Testament principle

> 'that by observing the way in which nature functions we can arrive at moral guidance for human life ... since it was the wisdom of God which made the world, he must have had some purpose in every detail of its ordering ... There are, then, in the OT elements to justify a pragmatic, science-based ethic, at least in some such general terms as these: that what by observation we discover really to work best, both for man and for other creatures, is something which loyalty to God requires us to put into practice.'(154)

This ethic reappears in Baker's summary of the OT utterances about nature, where it is immediately followed by the statement that

> 'if we are so guided, then we may hope even to improve the condition of nature ... there is a work of salvation to be done in it, as well as in humanity, as part of God's eschatological purpose, and this salvation is part of man's responsibility for nature.'(155)

Such redemptive work is allegedly possible, because nature has been demythologised, and it is achieved through human enterprise, skill, and wisdom. Baker does not discuss how this hypothetical redemption may be achieved by sinful man, whose sin has so disrupted the cosmic order that he has become 'the enemy of all living things' (pp.42f), nor does he discuss how any human work may be 'redemptive' in its effects upon nature.

Baker's pragmatic ethic has a teleological reference, which re-interprets the concept of dominion. Man's vocation is to use his dominion over nature as his part in fulfilling 'God's intention in creation'.(156) Baker uses the cosmic significance of Christ to put this human vocation in perspective. The biblical basis of the 'cosmic Christ' theme is found in Colossians 1:15ff, Hebrews 1:3, and John 1:1 - 4, through which shines

> 'a conviction that the whole universe, could we but see it, is in its essential nature in harmony not merely with some unknown divine power but specifically with God as revealed in Jesus, and that therefore there must be some modus vivendi between man and nature which, even if not yet attained, is in keeping with all that is best in both.'(157)

This gives 'cash value' to the New Testament claim that the reconciliation of the universe is made possible through Christ. Thus Jesus' life and his work of redemption, cosmic in its significance, becomes the transcendent ground for our present historical endeavours and shows that they are not ultimately meaningless or futile. Even though the new heaven and the new earth will not be 'evolved on our drawing boards' we may nevertheless, on this Christological basis, hope that our endeavours may provide 'images and foreshadowings of them'.(158)

This account of Baker's paper shows that his perspective is that the ultimate gives meaning to the penultimate and the christological gives meaning to the historical; and Baker's paper exhibits the five characteristics of the theology of hope approach exemplified by Gilkey at Bucharest.(159) The only new elements in Baker's paper are the intensification of the Christological foundation, and the provision of the pragmatic science-based ethic which helps to answer 'the possibility of a new care for the earth and its creatures' hoped for at Bucharest. (160).

Section III of the report is titled 'The Biblical Interpretation of Nature', and relies heavily on the papers by Koch and Baker. Some modifications have been made, the most substantial being the introduction of the 'creativity' theme to the discussion of human dominion.(161) This interpolation shows Gregorios' style and is also highly congenial to the process theologians' approach. It makes for some confusion in the subsection, however, since two concepts of dominion stand side by side: on the one hand, human dominion over the earth is a coordinate of God's dominion over humanity; on the other, it is the continuation of God's

creativity through man's agency. This highlights the question of the relationship between human and divine creativity, which is not resolved in the report.(162)

Baker's paper had led him to the hope that human scientific and technological enterprise might produce 'images and foreshadowings' upon earth of the eschatological kingdom, and Koch's paper had also hinted at this possibility.(163) This raises the question as to how the development of science and technology may relate to an eschatologically oriented hope, and this is the focus of a subsection on 'Eschatology and Futurology'. Its conclusion calls for a new theological vision which will rightly discern what it is that science and technology may (or may not) contribute to the coming life of the Kingdom of God.(164)

The questions of relating human and divine creativities, and of eschatology and futurology, are theological issues basic to the C&S programme and to its social-ethical concern about the right development and use of science and technology. Section III of the Zurich report helped to pinpoint some of the issues, and represents an advance on the theological section of the Bucharest report in this respect. But because it was unable to give substantial discussion to these issues, it represents little real advance in the theological part of the C&S programme.

What may be said of the report <u>in toto</u>? In structure, it is basically a series of position papers, where each position has been subjected to editing by its competitors. Thus section II shows process theology authorship, with occasional interpolations from Koch, Baker, or Gregorios, while section III has the interpolation on 'creativity' mentioned above.(165) This makes for a patchwork, disjointed report. This consultation had been a step in the right direction bringing together theologians from the three major approaches evident in the C&S programme; but it is not internally coherent, nor does it even further the discussion. The report only reiterates positions already articulated and established within the C&S programme.

Thus the 1977 Zurich consultation missed its theological opportunity. Strategically, this put the theological success of the MIT conference at risk. The Zurich consultation was the only specifically theological consultation convened since Bucharest and prior to MIT, and it was convened with MIT in view, to approach the most fundamental issue (in the Working Group's perception). Together with the inter-

disciplinary consultation about science and theology (Cambridge,U.K., 1978), Zurich 1977 and its papers was to provide the foundation for the theological and ethical deliberations at MIT.(166) It was tragic, to let such an opportunity slip; the fact that such a slip occurred will be discussed in my general conclusion, when I examine some of its implications for the C&S programme organisation.

This subsection has examined the 1977 Zurich consultation on 'Humanity, Nature and God', as the only C&S event since the 1974 Bucharest conference which is signifcant for the study of ecological theology in the C&S context. It has shown that three theological approaches were represented there — process theology, Gregorios' Orthodox theology, and the christological theology of hope articulated at Bucharest by Langdon Gilkey. The Zurich consultation has been criticised for its failure to develop the theological discussion by staying at the level of statements of position.

The next subsection will draw together the substance of this and the preceding subsections, by relating their discussions to my central theme of ecological theology.

(v) Ecological theology prior to MIT.

So far, this section has been concerned with providing a map of the theological terrain by taking bearings on the theme of the human relationship to nature. Now it is necessary to complete the map by drawing some of the details relating to ecological theology. This subsection is not concerned with assessing the actual or potential contribution to ecological theology that any of the main theological approaches may make; that is the task of the sections which discuss their representative authors, in Chapter Four below. Rather, this subsection is concerned solely with the observation of trends and with pointing out the broad theological issues that emerge from my surveillance of the C&S source materials.(167)

The term ecological theology is understood in the sense outlined in Chapter Two above. That is, an ecological theology is 'a theological attempt to coordinate doctrines of creation, anthropology, and eschatology, with the empirical evidence about the systemic unity of the created order and man's capacity for the technological manipulation and control of that order'.

There is a consensus in the C&S programme that the environmental crisis and the limits to growth thesis require theological as well as ethical reflection. The problem has been to locate the appropriate focus for that reflection. The 1973 Zurich working party on scientific rationality pointed out the need for a theology of nature in conjunction with a theology of history, requiring

> 'a new orientation for theological discussion of every theological doctrine or symbol ... directed not only to what the "new" God is doing in the future of history but also to his activity in the future of nature ... neither history nor nature can be theologically conceived except in relation to each other. This intrinsic interrelation is especially evident when the future of nature seems to threaten the future of history.'(168)

This theological insight is fundamentally correct, but remains unrealised in the C&S programme.

In 1974, the Bucharest conference stated in its report that

> 'Theology, in pursuing the doctrine of dominium terrae has opened the door to thoughtless exploitation and destruction.'(169)

It then called for a creative dialogue between theologians, scientists and philosophers of science, to focus upon the following two issues, inter alia:

> '(b) The attempts to overcome the rupture between nature and history as conceptualised in philosophical and theological thought ...
> '(e) The theological search for a comprehensive concept which overcomes the fragmenting theologising in relation to God, creation, humanity, and the Church.'(170)

Here the Bucharest report has articulated three themes which have persisted throughout the C&S search for an ecological theology. First, the consensus that (Western) biblical theology has got it all wrong, and needs reconstruction in the light of the environmental crisis and pertinent scientific evidence.(171) Second, the call to reexamine the relation of humanity and history to nature; the problem has been seen in terms of nature/history rather than the related problem of formulating a 'theology of nature'.(172) Third, the call for a unifying cosmology which will relate the cosmos to God.

The first theme relates to the doctrine of creation, and reflects some of the criticisms of the churches' interpretations of that doctrine,

as made in the secular debate by Lynn White, Arnold Toynbee, and others. (173) The C&S programme has turned to an interpretation of that doctrine which sees it as concerned with God's continuing relationship with the world, rather than as an attempt to explain the world's origin. (174) An early C&S statement said that

> 'For too long Christians have thought of creation as having to do with the beginning of things instead of understanding it in terms of God's continuing work and man's continuing responsibility.' (175)

This raises the question of man's relationship to the world vis-à-vis God's relationship to the world, the question of man's status as 'image of God' and his dominion over the earth. The 'emancipatory' approach had interpreted man's dominion as a responsible freedom to use nature to create and sustain the course of human history, and thus had brought the second theme to prominence. The rejection of the emancipatory approach by the 1973 Zurich working party represented a call to reopen the question of nature and history. Since then, a 'theology of hope' approach has emerged in the C&S programme, which uses eschatology and christology to give meaning to both history and nature. The non-human world has an eschatological future, guaranteed by the resurrection, as the 1977 Zurich consultation emphasised. (176) The theology of hope shares this view with the Orthodox tradition. For their part, the process theologians have approached the question of nature and history from the perspective of (Whiteheadian) metaphysics. Thus the very essence of nature is history, and on this basis they undertake to provide a radical new understanding of God's relationship to the world (as required by the first theme), claiming at the same time to have answered the question of nature and history (second theme) and to have provided the unifying cosmology required in the third theme. (177) Within the C&S programme, it is the process theologians who emphasise the third theme most vociferously; Gregorios agrees with the need for a unifying cosmology but does not press the point; and the theology of hope approach barely mentions the need for a unifying cosmology but nevertheless agrees with Gregorios in finding its elements in a christological orientation. (178) The 1977 Zurich consultation was the first deliberate attempt in the C&S programme to explore these themes more deeply, by bringing together representatives of the various theological approaches, but it failed to go beyond its position papers.

By its definition, ecological theology requires that creation, anthropology and eschatology be coordinated with scientific insight and with a theological evaluation of the human capacity for technology.

The C&S programme could have made some progress here, but the result so far has been disappointing. Little theological use has been made of scientific insight, and the nature of technology has not been explored theologically.

Lindqvist's assessment of the Futurum project is valid for the whole C&S programme from the 1966 Geneva conference up to MIT, as subsection (i) above showed, namely that

> 'the empirical examination of problems has occupied a central position. Natural scientists have dominated the dialogue both quantitatively and qualitatively'.(179)

This problem-centred approach has made the reports into commentaries on the existing situations, and has hindered theological development.(180) Generally speaking, the dialogue between theologians and lay specialists has been found unsatisfying by both parties.(181) This implies that the theologians involved in the C&S programme have been unable to incorporate scientific insights into their attempts at theological reconstruction. This is confirmed by the generality of the discussion about scientific insight. There was only one place where one can observe scientific insight playing any part in theological argument, and that is the Bucharest report. There, it was stated that there may be considerable time-lag between the first appearance of a pollutant in an ecological chain and its eventual toxic effect upon man; thus contemporary concern about pollution is linked to society's present responsibility to safeguard the welfare of future generations.(182) That is, the evidence about the systemic unity of creation was used to confirm a position already held.(183) Otherwise, there has been little evidence of any theological reconstruction at all, let alone one which incorporates the valid insight of science.

The reasons for this failure may be inferred from Lindqvist's methodological criticism of the C&S programme. Between the 1966 Geneva conference and the 1968 Uppsala Assembly, a consultation was held at Zagorsk (U.S.S.R) under the joint auspices of C&S and the Faith and Order Commission; it represented a significant effort to come to terms with issues of ecumenical method and theological questions of principle in WCC social ethics. It advocated the method of dialectical interaction, but did so 'on a very high level of abstraction'.(184) Lindqvist's methodological criticism of the C&S programme is that

> 'there is no explicit deliberation of the method question ... the significance of empirical analysis has been emphasised, in line with the proposal made by the Zagorsk consultation. It has not been shown, however, how such an analysis affects theology ... If the [Futurum] Project is evaluated against the methodological solution advocated by the Zagorsk consultation, the work now concluded must be held but as the first stage in the ecumenical undertaking on these questions, for the emphasis has been so strongly on the inductive approach. Completion of the discussion requires (1) a systematic and holistic theological evaluation of the material collected and (2) an ecumenical consensus [within the context of an Assembly or similar body].' (185)

The C&S programme has attempted to move beyond the 'first stage' by taking up the broader theoretical issues of dialogue between scientists and theologians (as at Mexico City in 1975, and Cambridge, England, in 1978). But this has been done at the abstract level of epistemology, and there has been no practical application of the results of this dialogue to ecological theology. Meanwhile, the C&S programme continues to elicit material for 'first stage' discussion, without moving to its systematic and holistic theological evaluation.

The C&S programme has let another opportunity slip, in failing to explore theologically the human capacity for technology. This capacity has been assumed as a datum for all discussion, which has then concentrated on the second (nature/history) theme where the main question has been the relationship between man's technological progress in transforming the world, and the eschatological transformation of the world in the Kingdom of God. (186) This reflects the World Council's general concerns in social ethics, in particular the value of technology for improving the quality of life. It reflects the concern of the industrialised nations, whose social systems are technologically organised. It reflects the concern implied by the limits to growth thesis, that priorities be established for the future development of scientific and technological enterprise. (187) Most importantly, it is an area of common concern on which the differences between the theological approaches do not preclude discussion and common consent. This agreement to discuss the future of technology has forestalled discussion of the nature of technology, except in isolated instances. (188)

I have argued that the C&S programme has not been able to develop an ecological theology, though it appears to have the potential (as a promoter of interdisciplinary discussion) to do so. My survey so far

has illuminated several underlying theological questions, which could form the core of a potentially fruitful exploratory project within the C&S context. They will be touched on at various stages in this thesis, but I list them together here in order to conclude my survey of ecological theology in the C&S context prior to MIT with some indication of what may be done to make up for the C&S deficiency to date.

First, the C&S programme could further its study of the theoretical issues of science-theology dialogue by conducting a parallel study in ecological theology to provide practical experience in, and a working example of, that dialogue.

Second, there is a need to relate human creativity in the world to God's creativity. This is what lies behind the discussion of eschatology and futurology, and was raised as an issue for further discussion by the 1977 Zurich report.(189)

Third, C&S could explore the advantages and disadvantages of each of the main theological approaches represented in it, particularly the recent three of 'theology of hope', Gregorios' Orthodoxy, and process theology. I am attempting such an exploration in Chapter Four below.

Fourth and finally, the C&S consensus that (Western) biblical theology is partly to blame for the ecological crisis raises the question whether <u>any</u> biblically-oriented theological reconstruction is possible, and the question of the relevance of the biblical texts to such reconstruction needs to be explored. The C&S discussion has not yet aired this question thoroughly, but it has never been far from the surface, as the following shows.

The Futurum consultation on genetics in 1973 made the following statement, which has since achieved something of a canonical status in the C&S programme as a statement of theological policy:

> 'Churchmen cannot expect precedents from the past to provide answers to questions never asked in the past. On the other hand, new scientific advances do not determine what are worthy human goals. Ethical decisions in uncharted areas require that scientific capabilities be understood and used by persons and communities sensitive to their own deepest convictions about human nature and destiny. There is no sound ethical judgment in these matters independent of scientific knowledge, but science does not itself prescribe the good.'(190)

This has some very significant implications. It justifies the C&S policy of seeking specific evidence from professional scientists,

so that ethical decisions may be informed by accurate and pertinent information.(191) But it also raises the suspicion that the biblical material may be completely irrelevant to contemporary ethics and theology when they face issues arising from scientific or technological developments; a suspicion to which the alleged under-representation of biblical theology in the Futurum project gives some support.(192) Another reason for this apparent neglect of the biblical material may be the influence of process theology in the C&S programme, through Charles Birch as the Chairman of the Working Group. Process theology agrees that Western theology has got it all wrong, and should therefore be abandoned in favour of process theology which pays more attention to science.(193) This conceals another claim, that a biblically-oriented theology is inherently incapable of addressing environmental, scientific, or technological concerns. This hidden claim has not been argued within the C&S programme but it needs to be explored in the context of my final question before any progress may be made in ecological theology without alienating its biblical basis.

3. Ecological theology at MIT.

Section 1 surveyed the development of the World Council's ethical vision of the 'just, participatory and sustainable society', and placed the MIT conference theme in that perspective: the contribution of faith, science and technology to the struggle for a just, participatory and sustainable society. Section 2 traced the progress of the main events of the C&S programme relevant to my theme of ecological theology, from the preceding World Conference on Church and Society in Geneva (1966). It also described the four types of theological approach to the question of man's relationship to nature which have emerged during that programme: the 'emancipatory' approach, a 'theology of hope', process theology, and Orthodox theology. Thus the historical and theological background to MIT has been surveyed, and it remains to analyse the conference itself, including its immediate background, its proceedings, and its report.(194) This will be done in two subsections, the first dealing with the organisational aspects of the conference and the second with its ecological theology.

(i) Conference organisation.

The concept of a globally sustainable society had been proposed in the report of the 1974 Bucharest conference, and accepted by the Nairobi Assembly in its mandate for a continuing C&S programme: to explore 'The Contribution of Christian Faith, Science and Technology to the Struggle for a Just and Sustainable Society'.(195) The C&S Working Group met in 1976 and outlined a programme of study and action on the scientific and technical problems and ethical issues involved in the transition to such a society, leading up to a world conference on this theme.(196) The WCC Central Committee endorsed this proposal.(197) The conference mandate was

(1) to receive reports from sections and groups and commend them to the churches;

(2) to make recommendations to the World Council of Churches; and

(3) to issue statements in its own name on topics pertaining to the agenda of the conference.(198)

The MIT conference thus followed the tradition of ecumenical conferences organised by WCC programme units and sub-units — that of providing information, perspective, and advice to the churches, without attempting to speak on their behalf.(199) At MIT, the conference was to concentrate on four areas of special concern:

(1) the relation between science and faith as forms of human understanding, and the role of faith in determining the right use of science and technology;
(2) the analysis of ethical problems resulting from present and prospective developments in particular areas of science and technology;
(3) the economic and political problems relating to world resource use and distribution, and the more equitable sharing of science and technology; and
(4) new expressions of Christian social thought and action, which are both attentive to the promises and threats of modern science and technology, and engaged in the search for a just, participatory and sustainable society.(200)

In its approval of the C&S five-year programme proposal for 1976 - 1981, the World Council's Central Committee had urged 'that there be more emphasis on the social sciences and social technology'.(201) The MIT conference concerns, and the Council's ethic of the just, participatory and sustainable society, make it necessary for proper and adequate discussion of the issues, that the social sciences (particularly the economic and political specialists)be represented substantially at the conference. As it happened, the balance of participants was in the favour of the natural scientists and the technologists at the expense of the social scientists and theologians.(202)

I argued in section 1 that the MIT conference was the conceptual heir of the Futurum project. That project has been criticised for its concentration on gathering specialist data about scientific and technological advances and then failing to coordinate that with theological evaluation and development.(203) The same has been true of the C&S programme since the Futurum project, as section 2 shows. This emphasis on information-gathering has persisted into the planning of the MIT conference and therefore to some extent into the course of the conference itself. In the introduction to the second volume of the report, C&S director Paul Abrecht stated that

> 'The choice of plenary topics and speakers was made in the light of the fact that the issues of science and technology were to be uppermost in the conference, and it was important for the churches to listen to the scientific community which thus far had had little opportunity to be heard in church circles. This specific focus ... determined the composition of the conference: about 50 percent physical and natural

> scientists and technologists with social scientists, political thinkers and others making up the rest.'(204)

Thus the favouring of the natural scientists and technologists, and the informational diet, was based on the planning committee's interpretation of the conference concerns and how best they could be discussed.

The planning committee attempted to overcome the under-representation of theologians by giving them strategic prominence in the conference programme. After the opening formalities, there were plenary addresses by Philip Potter, 'Science and Technology: Why are the Churches Concerned?', by the astronomer Robert Hanbury Brown on 'The Nature of Science', and the Orthodox theologian Paulos Gregorios on 'Science and Faith: Complementary or Contradictory?'. The emphasis on science-theology dialogue was followed by a morning of straight theology: 'Nature, Humanity and God in Ecological Perspective', by Charles Birch; 'Solidarity in Conflict', by Gerhard Liedke; and 'Christian Perspectives on Creation in a Time of Ecological Unsustainability', by the Russian Orthodox Vitaly Borovoy. The second day continued with the discussion of other basic issues, after which the conference moved to its other themes — 'Perspectives and Futures', 'Particular Problem Areas', and 'Participation and Power'.(205) Thus the programme structure was designed to encourage the conference to look first to its theological foundations before responding to particular problems.

The main conference programme had two dimensions, apart from the formalities and the gatherings for worship and bible study. The conference met in plenary sessions, and in ten working sections. The plenary meetings predominated in the early days, with nine plenaries in the first two days; but gradually the balance shifted to the work of the sections. Finally, the sections reported their findings to the conference in plenary, where they were discussed and amended and then sent to the Editorial Committee for inclusion in the Conference Report.

The purpose of the Plenary addresses was to convey ideas and information on issues that concerned the conference as a whole. The sections did the more specialised work, focussing on particular themes:

I. The nature of science and the nature of faith.
II. Humanity, Nature and God.
III. Science and Education.
IV. Ethical issues in the biological manipulation of life.
V. Technology, resources, environment and population.
VI. Energy for the future.
VII. Restructuring the industrial and urban environment.
VIII. Economics of a just,participatory and sustainable society.
IX. Science and technology, political power,and a more just world order.
X. Towards a new Christian social ethic and new social policies for the churches.(206)

Each participant was a member of one of the sections I - IX, and section X was composed of representatives from the other nine sections. Its report therefore represents an interpretation and summary of the ethical issues emerging in the conference discussions, plenary and sectional.(207) It is evident from the titles of the section reports that the conference focussed on specific problems and attempted to formulate some Christian (ethical) response to them. The only sections devoted to theological themes were I and II, and only the work of section II is pertinent to my theme of ecological theology. I will report on the work of section II in my next subsection.

Before proceeding to the discussion of the conference's theological work, it is appropriate to outline here some of the participants' responses and evaluations of their conference experience.

The first 'official' appraisal came within the month, when the WCC was represented by Paul Abrecht and Paulos Gregorios at the United Nations' Conference on Science and Technology for Human Development, held in Vienna that August. In his presentation, Gregorious outlined five of the many insights gained at MIT. In the light of his audience's concerns, it is natural that he emphasised the ethical rather than the theological issues.(208)

The Ecumenical Review of October 1979 reprinted some of the plenary addresses given at MIT, and the reactions to the conference of four of its participants.(209) The tone is one of exasperation and disappointment. There was

> 'little forward progress in ecumenical theology or social ethics.'(210)

The conference was

> 'over-planned, over-programmed, and over-structured ... the process very nearly undermined the agenda altogether.'(211)

The programme assumed

> 'that all participants were pocket-size supermen and superwomen capable of sustainining fourteen days of unexampled intellectual exertion.'(212)

One participant pointed to the disparity in the allotment of theologians to sectional tasks:

> 'the composition of sections had much to do with the substance and style of section reports. For some reason, professional theologians were allowed to congregate largely in the sections with grand themes like "Nature of Science, Nature of Faith" and "Humanity, Nature and God" — or in the sections on the two science-related topics which... have become most fashionable for the churches these days: genetic engineering and nuclear energy. This lineup tended to deprive the other topical sections ... of serious and sustained theological conversation. The obverse was the related lack of systematic social content in the reports most heavy-laden theologically.'(213)

The next wave of evaluations came in 1980, with the publication of the conference reports. In his introduction to the first volume, the editor, Roger Shinn, noted three areas of strong consensus and two of major disagreement at the conference. There had been agreement that there was no 'technical fix' for the contemporary basic social problems; no 'religious fix' either; and the scientists and theologians did not divide on party lines, but there were scientists and theologians together on both sides of the issue in the big debates. The disagreements were over the appraisal of science: some saw it as a search for knowledge and a method of solving problems, and others as an instrument of oppression and exploitation which gave more power to the powerful. The other contention was over the relative importance of forthright action as against continuing inquiry. Shinn concludes, cautiously,

> 'that the conference is, at a minimum, an impressive testimony that the churches and the world have an immense stake in the uses of science and technology.'(214)

However, neither Shinn nor the editor of volume 2 (Paul Abrecht) attempts any theological appraisal of the conference. Abrecht emphasises the advisory nature of the conference; it could only

> 'help the churches understand the immense promise and threat of modern science and technology, the challenge these present to traditional Christian thinking, and

> the desire of many scientists to work with the churches in determining their social responsibilities.'(215)

The final evaluations from within the conference came in reports given by the various participants to their sponsoring churches or other interested bodies. A selection of these was published in Anticipation (May, 1980). Abrecht noted in his editorial that the reports and interpretations of the conference received by then had shown some consensus on seven issues, two of which are worth quoting here:

> 'The conference did not resolve the theological-philosophical issues underlying the debate about faith, science and society; but it revealed a new awareness of their importance as well as the need to make a breakthrough, one applicable in a world context ...
> 'The conference did achieve some measure of agreement on one critical issue: our Christian understanding of creation. But the implications of this have still to be developed within the Christian community and between it and other relgious traditions and ideologies. The conference offers helpful lines for pursuing this debate in the future.'(216)

Here, I think Abrecht has been over-optimistic in his statement about the Christian understanding of creation, as the next subsection will show.

(ii) Ecological theology at MIT

The selection of sources for this theological analysis of the MIT conference proceedings is governed by one criterion only: a document represents a useable primary source if it addresses one of the dimensions of ecological theology, as the term is understood in my second chapter. Of the conference plenary addresses, those by Charles Birch, Gerhard Liedke, and Vitaly Borovoy are primary sources. The papers by Birch and Liedke are discussed subsequently, in Chapter Four, and so are only summarised here; Borovoy's paper is treated at greater length here, since it plays no further part in the thesis.

Apart from sections I, II, and X, the sections address particular problems and present little in the way of theological argumentation. Section I is concerned with the theoretical issue of science-theology dialogue, rather than with the practical outworking of that dialogue in ecological theology. Section II, on 'Humanity, Nature and God',

is an obvious primary source. Section X is concerned with social ethics, and so is not obviously relevant to ecological theology. However, it does aim to draw the conference threads together, and it does include some material pertinent to ecological theology. It will serve as a control group, to ascertain whether section II was theologically typical of the conference as a whole; this is only possible because section X drew its membership from each of the other nine sections.

Birch was the first of the three to address the conference, and he propounded eight theses, pointing out the inadequacy of a mechanistic world-view and the appropriateness of the process theology approach. The former leads to a 'disjunct view' of the relationship between humanity, nature and God, while the latter fosters a unitary 'ecological view'. He argues that

> 'the ecological view of nature, humanity and God has developed as a reaction firstly to the ecological crisis, secondly to the inadequacy of the disjunct view to provide a guide to the ecologically sustainable and socially just society, and thirdly to the failure of the scientific-technological world-view to account for that which is most important in life.' (217)

The expression 'that which is most important in life' refers to the alleged ecological ethic of the disjunct view, and its apparent failure to relate science and faith in such a way that the integrity of the Christian practising scientist is not automatically jeopardised. It refers to the mystery of human experience as well as the wonder and mystery of the existence and ordered structure of the universe; according to Birch, the biblical paradigm for this 'personal encounter with the universe' is found in God's interrogation of Job (chapters 38 - 42).(218) Birch then argues that process theology offers a viable alternative to the traditional disjunct theology, with a ready-made ecological ethic. This claim will be assessed below, in Chapter Four, section 4.

Gerhard Liedke spoke next, and included some criticism of process theology as an unnecessary alternative. It is 'unnecessary' because it is still possible to revise biblical theology. He attempts such a revision of Protestant continental theology by reinterpreting key biblical texts and by drawing attention to contemporary theories of conflict coming from the social sciences, the work of Johan Galtung in particular.(219) Liedke agrees with Birch that western theology has

allowed man and nature to be separated by too great a distance and, by way of correction, he reexamines Romans 8:18ff and the dominium terrae texts of Genesis 1 and 9. His conclusion is that the dominion of Genesis 1 represents an ideal which was never realised, but that the dominion text applicable to contemporary sinful humanity is the post-deluvian Genesis 9:2. Here man's relationship to nature is one of conflict, even to the extent of Holy War. The Romans passage presents a christological and pneumatological reinterpretation of these Old Testament texts. Since Christians have the Spirit, they are the hope of liberation for the suffering creation, and are obliged to reduce its suffering wherever possible (by prudent ecological management, for example). In terms of Galtung's theory of conflict amelioration, man in general and Christians in particular are called to 'solidarity' with nature in the conflict. This has a theological as well as a conflict-theoretical basis:

> 'God's relation to us human beings is likewise one of solidarity in conflict. By voluntary renunciation of his power, God in his Son Jesus Christ has put himself in solidarity with us and so resolved the conflict. Man as image of the merciful God is called to the same kind of solidarity in regard to the non-human creation.'(220)

Liedke's position represents a development of the 'theology of hope' approach: harmony between man and nature is an eschatological goal which receives its guarantee through the resurrection, and for whose realisation humanity must strive throughout its historical existence. Liedke's particular contribution is his use of the 'conflict' metaphor, borrowed from the social sciences, to propose a 'theology of hope in conflict'. The strengths and weaknesses of his approach will be outlined below, in Chapter Four, section 3.

Vitaly Borovoy is a protopresbyter of the Russian Orthodox Church, which he represented at MIT.(221) In his plenary address, he outlined a tentative theological appraisal of technology, and called for a re-appropriation of 'classical theandric theology' with its emphasis on the divine-human unity. His paper concluded with a brief exposition of the thought of a little-known Russian, Nicolay Fedorov.(222)

Borovoy's appraisal of technology looks at the contemporary situation, the process of 'technization' itself and its effects upon mankind, and his own theological response to the situation. Technology is

> 'humanity's own product, the creation of its own genius, a child of the human spirit. Humanity has succeeded in setting free and using for its own purposes the hidden forces of nature. But humanity has not succeeded in possessing and controlling the results of the process. Technology has become stronger than humanity, and enslaved it.'(223)

Technology is ambiguous. It can be made to serve human welfare and noble societal goals, but it may also serve as a means of destruction, oppression, and exploitation of other humans as well as of nature. Its enslavement of mankind therefore represents a crisis for Christian thought and a 'judgement on historical Christianity'.(224) In this crisis, Christians have been caught unawares and find themselves unable to respond, because originally Christianity was intimately related to the soil and the patriarchal way of life, but technology has now severed this relationship and created a completely new reality in religious terms.(225)

Borovoy states that this new reality is characterised by organisation. Humanity organises life — great human masses, scientific activity, the economy, technology, life itself — yet cannot itself be the object of organisation. It always retains an 'organic, irrational, mysterious element' which prohibits its organisation. Here

> 'Christianity can help people to define creatively their relation to the new epoch, to master technology to serve their purposes. The [human] spirit can be an organiser, it can master technology for its spiritual purposes, but it will resist its own transformation into a tool of the organising technological process.'(226)

He then proceeds to put the questions of technological progress and human creativity into a social perspective, stating that

> 'Human creativity presupposes society as the aim, but at the same time it presupposes the preservation of the peculiarities of the creative identity of humanity ... As the image of the Creator, the human being is a living being with a capacity for creation.'(227)

At this point, the problem of technological enslavement requires the recovery of the 'classical theandric theology' to address

> 'the problem of humanity, the problem of saving the human individual from disintegration; it is the problem of the vocation and goal of humanity, the problem of solving urgent questions of society and culture in the light of the Christian truth about humanity.'(228)

These problems involve the questions of the interrelationships between the individual and society, and between humanity, nature and God.

Borovoy now turns to Fedorov. Fedorov's eschatology and his interpretation of the book of Revelation in particular show that the vocation of humanity is to unite and actively vanquish the forces of nature:

> 'The life of the world is ruled by the irrational "elemental" forces of nature. These forces must be regulated, subjugated to reason and knowledge ... If people will unite for the "common cause", for the existential realisation of Christian truth in life, if they will struggle against the elemental, irrational, death-dealing forces of nature in brotherly union, then there will be no reign of anti-Christ, no end of the world, no Last Judgment, and humanity will pass straight into eternal life. Everything depends on the activity of man. And Fedorov preaches an as-yet unheard-of activity for humanity which must overcome nature, organise cosmic life, conquer death and raise the dead.' (229)

The vocation of humanity, united in brotherhood, is to explore, to know, to inhabit and to possess the whole cosmos -- 'This is what humanity is created for', says Fedorov. (230)

Borovoy's paper makes no direct attempt to relate his contribution to the theme of the just, participatory, and sustainable society. His concern is for the brotherhood of man, which is instrumental for the achievement of humanity's goal of emancipation from bondage to nature through scientific and technological progress. That is, the achievement of the JPSS goal contributes to a dramatically powerful and successful science and technology, not vice-versa. Borovoy presents an Orthodox version of Lindqvist's 'traditional Western theology of history'; he is an Orthodox emancipist.

It is worth making a brief comparasion between Borovoy and Paulos Gregorios. (231) The latter emphasises the inherent unity of humanity, nature and God, whereas Borovoy has the attitude that nature is a force of bondage from which man must break free. Gregorios proposes that the scientific-technological attitude towards nature must be complemented by a 'reverent-receptive attitude'. This attitude is both individually and socially based, whereas Borovoy emphasises the global social attribute of brotherly unity. This unity has a christological foundation, hence his insistence on the 'classical theandric theology', though this is not made clear in his paper. The classical theandric

theology and the unity of historical humanity which Orthodoxy infers from it, is the only common theological foundation which Borovoy and Gregorios share.

The three plenary addresses have all agreed on one point. In his personal account of the conference (interpolated into the conference report), Roger Shinn commented on their agreement that

> 'the dominant theological traditions of modern times have not only been inadequate to the social issues coming out of science and technology but have in some ways been responsible for the human misappropriation of technology ... However this agreement within the conference led to great differences in the proposals for theological reconstruction. While all the speakers found biblical bases for their theological proposals, they diverged in their uses of the Bible, tradition and contemporary scientific knowledge.' (232)

Thus the conference had hit upon one of the continuing unresolved problems in the C&S discussions of ecological theology: the place of the Bible and its testimony in theological reconstruction, as mentioned in subsection 2(v) above.

What of the conference's formal attempt at theological reconstruction? This was undertaken in the report of Section II, on the theme 'Humanity, Nature and God'. (233) The titles of its subsections show that the report intends to pay attention to the biblical testimony in its reconstruction; after the introduction, the titles are as follows. 'The Relationship between God, Humanity and Nature in Modern Western Thought', 'The Relationship between God, Humanity and the Non-Human Creation in Biblical Thought', 'God, Humanity and Creation: the Biblical Testimony in the Context of the Scientific and Technological World', and 'The Christian Understanding of God, Humanity and Nature in Relation to Neighbours of Other Faiths'; the section report then concludes with two pages of 'Recommendations'.

Some of the themes which have persisted throughout the discussion of ecological theology in the course of the C&S programme appear again in this section report.(234) They appear as calls to further action, indicating that the section made no progress beyond the theological ground already gained by the C&S programme. This may be seen in its recommendations, from which I quote two passages at length:

> 'Within our section and in the conference generally the dialogue between theologians, scientists and social scientists has been carried a stage further. The discussions have revealed that the crisis of

> science and technology of the industrial nations stems from the present confusion about the right relationship between humanity, nature and God. The discussions also reveal that we are not yet in agreement about the proper relationship. We recommend that the WCC ensure that the debate continues, and urge a particular focus on the following questions:
>
> 'How to ground and explain theologically the relationship between humanity, nature and God in the dialogue with contemporary science.
>
> 'How to interpret the biblical mandate for humanity, with regard to a responsible dominion over the earth. Today this means worldwide ecological responsibility and stewardship in the face of blatant misuse and exploitation of the world, its people and its resources.
>
> 'How to express this responsibility through science and technology; the problem of developing ethical reflections in the different scientific disciplines; and the critique of the hidden ethos that technology expresses.' (235)

The second passage seeks to relate the Christian hope to the scientific understanding of the future:

> 'What has the Christian message of hope to say about the future? This question was repeatedly asked at the Conference but no single answer prevailed. We recommend that [two WCC bodies] explore the meaning of Christian eschatology in relation to the human future of promise and threat arising from the rapid and seemingly uncontrollable developments in science and technology.' (236)

I now wish to focus on five features of the section report: the persistence of the Western concern, the failure to provide a meaningful relationship between eschatology and futurology, the failure of real dialogue between science and theology generally, the call for the reinterpretation of biblical texts and concepts, and the dominance of the 'theology of hope in conflict' approach. The first three will be touched on briefly, the last two will be disussed in more detail.

The conference planning committee had sought to place the discussion of science and theology and of science and society in a global perspective, and therefore attempted to ensure the widest possible participation of scientists and non-scientists from all over the world. (237) In the section report, however, the first part focusses on 'modern Western thought', and the first recommendations are concerned with 'the crisis of science and technology of the industrial nations' (as quoted above). The fourth part of this section report is a Western concession to other ways of viewing things, emphasising the need to enrich (Western) theology with insights from

other faiths. Within the section report generally, the Third World and even the Orthodox contributions are barely evident, save for the occasional codicil.(238) It has been claimed that the conference generally was Western in its bias.(239)

The question of futurology and eschatology was 'repeatedly asked' but without a single answer emerging. Notionally, this question should have been discussed in part 3 of the section report, which concentrated instead on reinterpreting the traditional concepts of dominion and stewardship or with broad statements of general principle — for example, that the theology of hope 'gives the work of science and technology a basis, meaning and direction'.(240) Generally, it ignored technology's potential for evil, destruction, and exploitation, a potential which dominated the thinking of the 'problem-area' sections of the conference.(241) Section II failed the conference badly in this respect — perhaps because there were too many theologians and not enough hard-headed scientists.(242)

The recommendations state that 'the dialogue between theologians, scientists and social scientists has been carried a stage further'. The section report itself yields no evidence of such progress. Its themes, symbols, and language are all those of traditional western theology and include only superficial reference to science and technology, and this gives the impression that the theologians of section II have commented on, but not engaged with, the problems of science and its progresss. The only exception is a paragraph in part 3, which mentions the need for common structures and elements of language in dialogue.(243) In the conference planning, the 'dialogue' question was the province of section I, 'The nature of Science and the Nature of Faith'.(244) The practical success of dialogue is basic to ecological theology and to the work of Section II, but here again it has fallen short.

I turn now to the two features receiving longer exposition: the call for reinterpretation of biblical materials, and the dominance of the 'theology of hope in conflict' approach.

The section report recommends that the WCC continue the debate on the humanity-nature-God relationship, including a focus on the (re-) interpretation of 'the biblical mandate for humanity, with regard to a responsible dominion over the earth' in view of the need for 'ecological responsibility and stewardship'. The concepts of dominion and responsible stewardship have retained their centrality in the section

report, and the question is how they may be related to the contemporary western technological context. Part 2 marshalls the biblical evidence about the relationship between God, humanity and the non-human creation, and part 3 attempts to build on this with one eye on the technological situation. It attempts to reinterpret the dominium terrae and the imago Dei traditions:

> 'What needs to be emphasised today ... is the relatedness between God and his creation rather than their separateness. The dignity of nature as creation needs to be stressed and humanity's dominium must be bound up with our responsibility for the preservation of life ... The biblical concept of dominium is developed today in various ways. Two such ways can be distinguished: humanity as the maker (homo faber) and humanity as the cultivator ... What we need is a view which integrates these two approaches, sets a limit to the maker and opens the way for creative imagination, a view in which the reshaping of nature is embedded in cooperation with nature. Such creative and cooperative relationship with nature can be a parable of God's own activity as Creator. This ... is included in the imago Dei.'(245)

The discussion of the JPSS theme is then based on the statement that the imago Dei and the dominium are 'the birth-right of all human beings'(246) However, the quotation above represents the core of the section report's discussion of these biblical concepts (apart from the marshalling of the evidence in part 2); it is a discussion of what is necessary for further progress.

Liedke's call for the re-interpretation of biblical texts and concepts has been accepted by section II, and his influence, may be discerned in parts 2 and 3 of its report. These refer to 'solidarity in conflict', and to nature's inability to speak for itself, so that 'we human beings must make ourselves its advocates and defend its rights to live'.(247) The Gilkey-Baker-Liedke theology of hope approach dominates the section report, in fact. For example,

> 'As Christians we speak of humanity and nature in the context of the work of God as Creator and his goal for his creation ... God remains free in relation to his creation. In his faithfulness he grants it continuity and permanence. He is always at work in his creation, enters it in Jesus Christ and purposes to complete and perfect his communion with it. This cannot be deduced from a scientific view of nature but only from our knowledge of God in the history of Israel and through Jesus Christ. But it gives the work of science and technology a basis, meaning and direction.'(248)

Or again,

> 'The cross of Jesus Christ points to the way of participation and the creative transformation of suffering. This is one aspect of following the cross in our scientific and technological world.'(249)

This espousal of the theology of hope in conflict, and the Western tenor of this section report, have combined to reject (implicitly) the approaches of Birch and Borovoy and Orthodoxy generally. Process theology is listed amoung the 'counter-currents in western thought' in Part 1 which have failed to 'correct' the alleged dualistic tendency in traditional Western Christianity.(250) Its theodicy is repudiated. (251) Borovoy shares the same fate. In its call to reinterpret the dominium concept, Part 3 speaks of man as maker and cultivator, without mentioning man's capacity to organise and his resistance to being organised, central to Borovoy's theological appraisal of technology.(252) Orthodox theology is given a paragraph in Part 1, but the discussion of the eucharist in Part 2 is taken almost verbatim from Liedke's book, supplemented by a vague statement that

> 'the eucharistic view of the world shows that our Christian hope for human beings and the non-human creation is not unfounded. These are foretastes of the coming kingdom of freedom.'(253)

This amendment may have been Orthodox in origin, but has been over-written by the theology of hope approach. It is certainly far removed from the characteristically Orthodox eucharistic teaching about 'union-participation', mentioned in Part 1. (254).

Thus the report of section II has adopted the theology of hope approach at the expense of other approaches evident in the C&S programme 1966-1979. The survey of ecological theology in that programme (in subsection 2(v) above) highlighted three persistent features: the consensus that traditional western theology needs re-construction in dialogue with science, the call to reconsider the relationship of nature and history, and the need for a unifying cosmology to relate the cosmos to God. The first of these features is clearly evident at MIT in the report of section II; what of the others?

The question of nature/history has been subsumed under the theology of hope approach, and is not considered separately in its own right as it had been at the 1977 Zurich consultation.(255). Section II treats nature and history together within the 'hope' perspective;

thus Part 2 deplores the separation of creation, salvation in Christ, and eschatological hope.(256) The language of the section report is of 'God's history with his creation' or of God's work 'as Creator and his goal for his creation'.(257) The statement in the introduction is typical, that

> 'Humanity and nature belong with God's history with his creation in which justice and injustice, even life and death, are in conflict. But this history is also under the promise of God who will fulfil it in justice and peace. It is from this perspective that we see the future and commit ourselves to it.'(258)

This approach includes nature in history from the human and christological perspective; in adopting this approach, the section has implicitly rejected the process theology approach, which sees history as the very essence of nature's existence.

The process theologians have called for a unifying cosmology, to correct the failures of the disjunctive cosmology which separates man from nature.(259) Birch's influence in the Working Group has meant that the C&S theological discussion has been officially directed towards the exploration of the relationship between humanity, nature and God, as it was in the 1977 Zurich consultation and is now in section II.(259a) It is clear that section II accepted the title for its report, but felt that its main concern was to discuss the imago Dei and dominium terrae traditions, with a view to their reinterpretation. The only concession to the call for a unifying cosmology is that portion of the recommendations that admits that the section failed to agree about the proper relationship between humanity, nature and God, and calls for the dialogue with science to be continued with that in mind.(260)

In sum, the report of section II is thoroughly Western, and contiguous with the main features of the C&S programme which had preceded it, even to the rejection of the process theologians' approach.

But was Section II representative of the MIT conference as a whole? This question must be asked and answered in the light of the comment made by one participant, that the theologians tended to congregate in certain sections (one of which was section II), thus giving a definite imbalance to the sections' deliberations.(261) Since the other sections worked independently of each other and of section II, except for section X which was composed of representatives from all the other nine sections, I will use section X as my control element.

The report by section X was titled 'Towards a New Christian Social Ethic and New Social Policies for the Churches', and contains fifteen parts (plus recommendations) of which two are theologically oriented.(262) The tenor of the report generally is less western than that of section II, and the concerns of the Third World for social justice and relief from technological oppression are echoed more strongly in section X than they were in section II.

In its introduction, section X adopts a theology of hope, though it is not stated as strongly or as distinctively as it was in section II. Since the section's primary concern was social ethics, its theology tends to lean towards the social and historical in human existence. Nature is not ignored, however:

> 'Humanity is one member of the ecosystem... Practices destructive of the ecosystem will also destroy human society. In this respect justice characterises a human relationship with the whole ecosystem as well as the relationship with other human persons and groups.'(263)

This extends Liedke's 'solidarity in conflict' to include an ethic of justice in humanity's ealings with nature.

Section X agrees with section II that the way forward, theologically, is to reinterpret the traditional biblical concepts of dominion and stewardship. It admits that

> 'it is often argued that the western approach to science and technology is rooted in a Christian understanding of the creation, which sees nature as given to human beings for their exclusive use',

but maintains that such an argument is ill-founded:

> 'It cannot be affirmed too strongly that whatever truth there is in this opinion as a comment on the way some Christians have treated the natural world, it rests on false understandings of the Bible and tradition. We repeat our earlier affirmation [quoted above] that justice includes the human relationship within the ecosystem.'(264)

The part of the section report from which those quotations were taken was titled 'What is the relation between human "dominion" and Stewardship?', and is concerned with reinterpretation rather than exploring new theological approaches.

One of the features of section II report was its dismissal of the process and the Orthodox theological approaches. This part of the section X report contains four sentences which reflect the common

thought of Birch and Gregorios:

> '... the authority of human beings over nature is of an interdependent kind. We should perhaps think of ourselves as the self-conscious intelligence of the whole created order, with authority to act with and for it, not over it, We are therefore to care for nature, as if it were the body of humanity. This is good theologically, and it is good biologically.'(265)

They have had more success here than in section II, but otherwise section X has ignored them and Borovoy as well.

Thus virtually all of the features of the section II report recur in the report of section X, though expressed more moderately. Section II may therefore be regarded as typical of the MIT conference discussion of ecological theology.

This means that the MIT conference is a disappointment, as far as the development of ecological theology within the C&S programme is concerned. It has failed to make any significant advance. It has continued the failings of the C&S programme which preceded it, and in particular of the Futurum project of which it was the heir; that is, it has retained its bias towards the concerns and the traditional theological approach of the West, it has failed to relate the Christian eschatological hope to the technological future, and it has failed in its attempt at dialogue between theology and science. It has also failed to tackle a number of fundamental theological issues, such as the relevance and authority of Scripture in theological reflection on the ethical challenges of scientific and technological advances. The reasons for these failures have already been discussed; they include a dominating concern for social ethics in the World Council, which means that theological reflection for its own sake must take second place; a concentration on eliciting accurate and pertinent scientific information in order to inform ethical decision-making; and the pressures inherent in the conference situation, pressures which were particularly evident at the MIT conference. All of which means that the basic issues and areas that I listed on pages 120f, above still require attention in the ongoing C&S programme.

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The foregoing appraisal of ecological theology within the Church and Society programme generally and at the MIT conference in particular shows that it is necessary to explore the different theological

approaches which have appeared therein. Each must be examined on its own merits, with special reference to its suitability as a response to the environmental crisis and the limits to growth thesis; and the general problem of living in a scientifically and technologically oriented world. This task is undertaken in Chapter Four, to which I now turn.

CHAPTER FOUR: The Four Main Positions Examined.

The survey of the C&S debates from 1966 to 1979, undertaken in Chapter Three, showed that four theological approaches to the problem of humanity's place in the cosmos were represented. These were described as 'the emancipatory approach', the theology of hope approach, the process theology approach, and the Orthodox approach of Paulos Gregorios. This chapter describes and evaluates these approaches in turn.

This chapter has five sections. The first section concentrates on the method: that is, on finding a way in which the approaches may be described and compared. The next four sections describe, analyse, and evaluate the approaches, one by one. The features common to the four approaches, and the conclusions that follow from these common features, will then be stated in my next chapter, 'Conclusions'.

1. The method.

As defined in Chapter Two, ecological theology is theological discourse about the cosmos and humanity's place and influence therein, which also makes special reference to the interpretations of the cosmos contributed by ecology and the sciences generally. It is therefore an interdisciplinary endeavour, undertaken in dialogue with science. But as theological discourse, it may and must be analysed and evaluated according to the standards applicable to all theological discourse; this chapter proceeds on this basis. This section aims to state and justify the terms of reference for my (theological) analysis and evaluation of the four ecological theologies represented in the C&S discussions.

The discussion of the foregoing chapters suggests that the following list of questions would serve to isolate the main features of each approach. The questions relate to the cosmos, its place in eschatology, humanity's and God's relationship to it, and to science and technology. Precisely stated:

(1) With regard to the cosmos, what is its theological status? and how is the cosmos described?

(2) Does the cosmos have a place in eschatology?

(3) What are the dimensions of the human relationship to the cosmos? This includes, for example, the theological assessment of humanity's biological contiguity with nature, its capacity to transcend nature by mental and technological process, and the *imago Dei* and *dominium terrae*

traditions. It will also include the theological assessment of the limitations placed upon human existence by the 'laws' and regularities of nature.

(4) What are the dimensions of God's relationship to the cosmos?

(5) What is the theological assessment of science and technology, as human enterprises?

These questions are some of the obvious questions, which emerge from the discussions in Chapters Two and Three particularly, and from that of Chapter One as well. It would be possible to describe each of the four main positions with the aid of these five questions. This would provide four concise summaries of the four positions, but no means of comparing them except by correlating their responses to the questionnaire. It would not provide an overview of possible inter-relationships within a position or between positions. If it is possible to obtain a systematic perspective on all four, then that will supplement the questionnaire style of description, illuminate similarities and contrasts between them, and make for a more penetrating analysis.

Lindqvist has already attempted such an analysis in his survey Economic Growth and the Quality of Life, using 'history' as his main interpretative and analytic category. I have already argued in Chapter Three that his approach has tended to mask the significant differences between Gregorios' Orthodox stance and that of process theology, as well as combining the emancipatory response with the theology of hope (section 2, subsections (ii) and (iii), esp. pages 104f above). Therefore I must seek elsewhere for the appropriate systematic perspective.

I intend to adapt H. Richard Niebuhr's survey, Christ and Culture, and survey the four main positions according to their responses to the theological question of the technological culture.(1) This survey suggests itself for adaptation and use in this context, for the following reasons. First, Niebuhr's survey has won wide general acceptance as an authoritative systematic account and evaluation of the various theological responses to the question of culture in the life of the church. Second, the question of technology is necessarily involved in the discussion of humanity's relationship to the cosmos and in theological response to the environmental crisis, and the technological enterprise falls within the scope of the 'culture' of Niebuhr's study; the theological question of technology is therefore a special aspect of the wider question of culture. And finally, I hope to show that the

adaptation of Niebuhr's survey to the specialist question of discipleship in the technological culture does in fact provide an illuminating perspective on the four positions under review, with the added merit of elucidating the theological orientation which each position gives for living in the environmental crisis situation and the technological culture with which it is inescapably bound.

I have argued in Chapter one that technology plays a central part in the issues of the environmental crisis (section 1, pages 6-8 esp.) The rapidly increasing population requires a vast and intense technological enterprise for its sustenance: the technological control of species which compete with man for food is essential if the necessary food supply is to be forthcoming; yet the long-term effects of this control may jeopardise the survival of the human species either by cumulative chemical poisoning or by destroying the ecological substructure to such an extent that it loses homeostasis and the quantity and quality of its food yield is irreparably diminished. How, then, may the Christian respond to this grim dilemma? My survey will show that several responses are possible.(2)

Two things must be attempted before embarking on my survey of 'Christ and the Technological Culture'; or, as I will call it, 'Discipleship in the Technological Culture'. First, the concept of 'the technological culture' must be made precise. Second, a relationship to Niebuhr's original survey must be established, and this will be done by translating the types analysed by Niebuhr into recognisably similar types of response to the technological culture. These tasks will occupy me for the remainder of this section.

In order to develop the idea of the technological culture, I begin with Niebuhr's own definition of culture:

> 'What we have in view when we deal with Christ and culture is that total process of human activity and that total result of such activity to which now the name culture, now the name civilisation, is applied in common speech. Culture is the "artificial secondary environment" which man superimposes on the natural. It comprises language, habits, ideas, beliefs, customs, social organisation, inherited artifacts, technical processes, and values.' (3)

Some of the chief characteristics of culture, he stated, are that it is social; a human achievement, purposefully oriented towards the establishment, realisation, ancd conservation of human values; but also pluralist,

'partly because men are many'.(4) His definition suggests that the technological culture to which the individual Christian responds would be the aspect of his culture which is associated with its technical enterprise, the economic theories and legal constraints which govern its daily operation, the relations between management and workforce, the relationship of the scientific enterprise to industry, the institutions and systems for the dissemination of scientific and technological information, the impact of technology upon human health (pollution) and on the culture's language, habits, ideas, beliefs, customs, and social structure. But there is a hidden presupposition involved in attempting to define technological culture this way: namely, that technology only affects those societies which are technologically (industrially) oriented, such as those of Western Europe and North America. This presupposition is invalid at the biological level. Food chains do not respect national or territorial boundaries, they transfer chemicals from one geographic region to another, so that the inhabitants of non-industrial nations may nevertheless absorb industrial chemicals through the hunter's quarry.(5) On the other hand, international economics is geared to a level of productivity which can only be achieved by technological means, and modern conventional (i.e. non-nuclear) weaponry requires sophisticated technology; this means that the non-industrial nations are under strong pressure to develop technologically in order to maintain living standards and independence.(6) The presupposition is therefore invalid at the cultural level as well as the biological. Thus 'technological culture' cannot be defined as a dimension of culture in a technologically advanced society.

Technological development has global implications at both the cultural and biological levels. The individual Christian is implicated, no matter what the technological character of his national culture may be. So it is better to understand technological culture in the broadest possible sense, and say that

> technological culture includes both the cultural phenomena of scientific and technological enterprise and their implications for human existence around the world.

For a Christian in an industrial society, this will include all the dimensions listed above (the physical structures of industry, labour relations, etc.). For a Christian in a non-industrial society, it includes the pressures of his society to increase its industrialisation,

the results of these pressures in terms of societal goals and values, economic policies, political and legal structures, and the types of institutions developed and programmes initiated. The reality of this aspect of technological culture may be seen in the following quotation from one of the Working Group reports to the 1970 Geneva conference, reflecting on the Asian and African situation:

> 'Some of these countries experience a profound cultural conflict between their traditional values and the habits of thought and life which the management and control of technological power require. Christian faith may be caught creatively in the middle of this conflict. Its biblical sources may help a non-Christian culture both to rediscover the human values it represents over against modern technological rationality and to come to grips constructively with the power and promise which technology brings to man. This will require however a profound rethinking of the Christian message, with the help of human values contributed by traditional Asian and African cultures.'(7)

This quotation serves two purposes. It confirms the insight above, that technological culture is international in extent and that it must be defined for the global context. My definition has attempted to do this. The quotation also shows that the problem of technological culture may have a theological dimension, when Christians concerned with their nation's culture seek to relate their social and Christian awareness to technological development. It is on this basis that I attempt to survey attitudes to discipleship in the technological culture.

It is clear from the definition above that there is only one technological culture, global in extent. It will have different expressions in different cultures, corresponding to differences in culture and in technological development. Nevertheless, I shall refer to <u>the</u> technological culture and take account of its localised expressions only when it is necessary to do so.

It is now necessary to attempt a translation of Niebuhr's survey to the new context of the technological culture. My survey of the four main approaches in the C&S discussions will show that they fit into the natural adaptation of Niebuhr's schema.

Niebuhr distinguished five types of theological response to the question of culture. I shall delineate and translate each of them in turn.

The first type of response emphasises the opposition between the demands of Christian commitment and those of the culture in which the believer lives. The Christian is not bound by the customs of his society, and rejects as valueless the human achievements which his culture values. The rejection of culture extends to the criticism of all its institutions, including its political, economic, legal and religious institutions. Niebuhr calls this type of answer the 'Christ Against Culture' type.(8) A similarly thorough repudiation of the technological culture could be regarded as a 'Christ Against the Technological Culture', rejectionist, type. In fact, this type of response is not represented in my survey, so I will not attempt to specify its theoretical characteristics any further.(9) It has occurred outside Christian theology in response to technology and the environmental crisis, for example in Theodore Roszak's The Making of a Counter-Culture, and in the Marxist philosopher Herbert Marcuse, One-Dimensional Man.(10) In particular, the lesson from Marcuse's indictment of technology is that the repudiation of technological culture need not entail the repudiation of culture in general, since Marcuse denounces the technological culture for creating a one-dimensional humanity, yet also names art as the great transforming agent for human existence.(11) It is also theoretically possible for the individual Christian to reject the technological culture, yet at the same time turn in another response to the question of Christ and culture.

The second response in Niebuhr's typology recognises the existence of a fundamental agreement between Christ and culture. Christ works in, with, and through society and its institutions, fulfills its hopes and aspirations, and brings its germinal faith to fruition. This response feels no great tension between church and world, the gospel and the laws of society, human effort and the workings of divine grace, the ethics of salvation and the ethics of social conservation and progress. Niebuhr calls this the 'Christ of Culture' response.(12). It is possible to speak of a similar response to the technological culture, which would see the technological culture as the instrument of man's growth to full maturity and the development of his perfect humanity. Christ works in, with, and through the agencies of technological development; human technology enables man to realise his full human and spiritual potential, and is also the means by which God brings the cosmos to its appointed destiny. This could be called the 'Christ of Technological Culture' approach, but for brevity I shall call it the synthesist approach.

It allows for a theological synthesis between the claims of discipleship and the technological culture.

Niebuhr describes three other responses which together comprise the middle ground between the two extremes of the 'Christ Against Culture', and the 'Christ of Culture' types. These three median approaches agree that the fundamental theological issue does not lie between Christ and culture but between God and man. They agree that human culture is an inescapable part of human existence because God has created humanity as a social and cultural being, and recognises that his creation is 'good' (Genesis 1:31). This rules out a simple opposition between Christianity and culture. Simple cultural accommodation is also ruled out, because the median positions agree on the universality and radical nature of sin whereas the extreme positions tend to minimise its effect. The median positions also agree on the primacy of God's grace, the necessity of works of obedience, and the hope of redemption in Jesus Christ. Niebuhr says that they represent

> 'the great majority movement in Christianity, which we may call the church of the center.'(13)

Because of their fundamental agreement at this level, the three responses which comprise the median are more closely related to each other than any one of them is to either of the extremes. Nevertheless, the church of the centre does not admit one simply ordered answer to the problem of culture. On the understanding that they are median positions and share the theological characteristics of the median stated above, Niebuhr speaks of 'Christ Above Culture', of 'Christ and Culture in Paradox', and of 'Christ the Transformer of Culture'.(14)

With regard to the technological culture, there is also a position which may be called 'median'. It recognises the universality and radical nature of human sin, the primacy of God's grace, the necessity of works of obedience, and the hope of redemption in Jesus Christ. It is not so evident that the technological culture is an inescapable part of human existence, established by God at the creation and comparable to man's social nature. But it may nevertheless be regarded as an inevitable aspect of human existence, since God has created man as a social and cultural being, with the capacity to manipulate the environment, to develop technological ways of manipulating it, and to communicate his knowledge to other humans. The technological culture may therefore be regarded as an aspect of the 'good'creation willed and

established by God, and accepted as part of the context in which contemporary Christians are to live out their commitment. If a theological position shows this sort of acceptance of the technological culture, in combination with the views of sin and redemption already described as 'median', I shall call it a median position. As it happens, three of the positions examined in my survey are median positions.

Niebuhr's 'Christ Above Culture' response seeks to maintain some sort of harmony between Christ and culture by bringing them both into one system of thought and practice. It is a 'both - and' synthesis, which accommodates Christ and culture, God's work and man's, the temporal and the eternal, law and grace, together. It is able to provide for willing and intelligent cooperation between Christians and unbelievers in carrying on the work of the world, at the same time maintaining the distinctiveness of the Christian faith and life. Like the 'Christ of Culture' response, it sees a basic agreement between Christ and culture, but explores this agreement from the theological perspective of the median.(15) A similar approach may be taken with regard to the technological culture. It would emphasise the human and spiritual benefits of technological advance, as obedience to the injunction to subdue the earth and have dominion over it. The personal involvement of a Christian in science, technology, or industry, may be regarded as a genuine Christian vocation, where the 'Christ Against the Technological Culture' would condemn such involvement. As a median position it will recognise that humanity is fallen and that sin pervades and corrupts all human activity, including all the levels of technological enterprise and the outworking of its cultural implications. Within this context, the technological culture is part of humanity's contribution to the achievement of the divine purpose in the cosmos. Because it shows a sympathy for the technological culture, but does not match the wholehearted theological commitment to the technological culture which the synthesist displays, I will refer to it as the sympathetic approach; human technological effort may be in sympathy with the divine purpose, but never identified with it.

Niebuhr's second median position is that of 'Christ and Culture in Paradox'. It sees a basic opposition between Christ and culture, as does the 'Christ Against Culture' type, but explores this opposition from the theological perspective of the median. Obedience to God requires obedience to the institutions of society and loyalty to fellow-

citizens, as well as obedience to a Christ who sits in judgment on that society. There is a polarity and tension involved in accepting the claims of the two discordant authorities, which means that life is lived precariously and sinfully in the hope of a justification which lies beyond history.(16) Translated to the context of technological culture, such an attitude would see technology and the technological culture as necessary evils whose existence forces the Christians into continual compromise; for example, when he pays his taxes to a government which will devote some of his money to weapons research. The Christian who adopts such an approach might admit, perhaps grudgingly, that agricultural and transport technologies must be developed in order to feed the world's population, yet be painfully aware that the pollution associated with these technologies despoils God's good creation. Thus he may seek to limit technological development to that which is necessary for human survival (at a level commensurate with the earth's resources and with distributive justice in the sharing of those resources), and to technological processes which minimise environmental deterioration. But he will know at the same time that the task is hopeless, and compromised at every turn. Only Christ can redeem the situation. This may be called the 'Christ and the Technological Culture in Paradox' response, but for brevity I will call it the ambivalent type. The ambivalence is in the technological culture itself; it benefits human existence, yet is bound up with sin in its daily operation, and presents the Christian with innumerable occasions for sin.

The last of Niebuhr's median positions sees Christ as the transformer of culture. It sees the potential of human existence (at the individual and social levels) in terms of an existence transformed by by the grace of God made effective in contemporary history, and enabling life to be lived for God's glory within the matrix of human culture. This approach sees creation as 'good' in its own right; it acknowledges the sinfulness of man and adds that this is perverted goodness and thus still capable of a degree of goodness in a way that total corruption is not; and it looks for the fruits of redemption to be manifest proleptically within present historical existence. This position has a more positive and hopeful attitude towards culture than that of the 'paradox' type, and pays greater attention to the effects of human sin and the primacy of God's grace than does the 'Christ Above Culture' type. For the latter sees goodness in culture per se, in spite of the distortion

caused by sin. This approach looks for the transformation of culture by the work of grace.(17) The parallel approach could be called 'Christ the Transformer of the Technological Culture', but for brevity I will call it the conversionist approach. It acknowledges the work of God in the technological culture, taking human achievement and transforming it now for his historical and eschatological purposes. In this way,Christ redeems human effort; for the sympathetic type of response (Christ above technological culture), the human effort needs no redemption because, in furthering the development of the technological culture, it is ipso facto good. This response, however, seeks to understand God's purposes in history and in the consummation of history, and to direct its efforts towards their realisation, just as the Christian strives for holiness in his historical existence. It also looks hopefully for signs of the coming Kingdom in the historical present. In this way it gives a hopeful evaluation of the technological culture, even in the face of such negative experiences of it as pollution and distributive injustice: God is working to transform the technological culture for the sake of the whole creation.

This completes my plausible but nevertheless hypothetical translation of the types of responses to the theological question of culture, to types of responses to the theological question of the technological culture. I claimed earlier in this section that this translation would provide a useful systematic perspective on the four main theological approaches represented in the Church and Society programme, as studied in Chapter Three. The next four sections put this claim to the test.

Each approach will be dealt with in three subsections, after a brief introduction. In the first, the approach itself will be described in its own terms, by an exposition of the primary sources which best exemplify and represent it. This will be structured around the five questions about the cosmos and about humanity, listed at the beginning of this section. The second subsection will relate the approach to the spectrum of responses to the theological question of technological culture, by means of the hypothetical typology constructed above. The third subsection will then concentrate on the strengths and weaknesses of the approach.

I begin with the approach which dominated the C&S discussions from 1966 through to 1973, which I called the 'emancipatory' approach. I

will discuss its successor (the 'theology of hope'), in section 3, after which sections 4 and 5 will discuss the approaches of process theology and of Paulos Gregorios respectively, and so complete my anaylsis.

2. The emancipatory approach.

The term 'emancipatory' is used to describe this approach, because one of its characteristic views is that nature is a power from which humanity must liberate itself by scientific and technological skill. In his survey Economic Growth and the Quality of life, Lindqvist described it as a theology of history and typified it by the statement that

> 'the God who historicises human existence frees man from entangling bondage to the powers of nature, and calls him to come of age and to become the master of the powers whose slave he previously was.'(18)

I have already argued that 'history' is not the right interpretative category for my present purpose; the quotation above makes it clear why I substituted the term 'emancipatory' to describe Lindqvist's 'traditional Western theology of history'.

Lindqvist states that

> 'the most profound analysis of the relation between man and nature in the framework of the Futurum project'

is that given by Derr in Ecology and Human Liberation.(19) Since Derr represents the emancipatory approach, his book will serve as a primary source for this examination of the emancipatory approach. Another significant representative is the Faith and Order document 'God in Nature and History', which is based largely on a study by Hendrikus Berkhof that appeared in Study Encounter(1965) under the same title.(20) Comparison of the two documents shows that the Faith and Order document represents only a slight modification of Berkhof's paper, and that the principal source of its emancipatory type of theology is Berkhof's study. It is therefore more convenient, and more faithful to the emancipatory position, to use Berkhof's study as one of my primary sources. Derr's book is actually an exposition of Berkhof's theological position with special reference to the environmental crisis.(21) This means that I can describe the emancipatory position on the basis of Berkhof's paper, and use Derr's book for the subsection on discipleship in the technological culture. Then the third subsection will evaluate their approach.

(i) Exposition.

As indicated in the plan proposed for this analysis, the description of the emancipatory position will be based on the five questions

listed at the beginning of section 1.

(1) The cosmos. Berkhof begins with a rapid survey of the changed view of nature implied by scientific research. He seeks

> 'a new and better mutual relationship between the Christian message and the modern view of life and of the world',

starting from the biblical perspective.(22) His main category is 'history', so he explores the way human history may relate to nature as it is presently understood by science. The theological question arises from an awareness of the structures and processes of the cosmos, and its answer is given in terms which make this awareness secondary. For nature is only understood through history and on the basis of the human relationship to God:

> 'After God's character in his historical deeds is discovered, this character can also be discerned and these deeds seen prefigured in the processes of nature.'(23)

Nature, on the other hand, with history and consummation, are inseparable links of a chain whose

> 'true character and unity [can be seen] only from the middle of God's revelatory deeds in history, whence both a backward and a forward look are possible.'(24)

The cosmos has some theological status, therefore, but of a strictly secondary kind. Nature comes first in the order of being, but history comes first in the order of theological knowledge because God makes himself known in history and not in nature.(25) History is dynamic, with God's purpose of revelation and redemption; nature is dynamic, but without purpose.(26)

(2) The cosmos in consummation. The new world will be this earth, renewed and re-created according to the new humanity in the risen Christ. The eschaton

> 'will be the complete and glorified unfolding of what God has already begun in history in his Son and in his Spirit.',

which involves a measure of discontinuity for both history and nature in their consummation.(27) Some elements of this present historical existence will continue, however. In particular,

> 'consummation will mean a new and far more thorough-going display of man's freedom and dominion';

for its part,

> 'nature will completely lose its uncertain, chaotic and threatening character and will be entirely subservient to man.' (28)

Thus nature will play the role God intended for it in its creation, unimpeded by the effects of human sin. (29) What was evident in the life of Jesus will be universal in the coming Kingdom. (30)

It is clear from this account that the primary theological category is human existence and history, that the cosmos is secondary to that and only seen as instrumental to the truly human life. It does not merit theological discourse in its own right, either with respect to historical or eschatological existence.

(3) The human relationship to the cosmos. Berkhof lists seven aspects of the man-nature relationship. (31) First, man is the product of nature; he is the fruit of an evolutionary process, but biblical thought agrees that human existence is rooted and grounded in nature (Genesis 1 and 2). Second, man is nurtured by nature, and this nurture extends to such dimensions of human existence as the biological and the aesthetic. Third, man is threatened by nature's ambiguity; if he does not resist nature, she can 'swallow and suffocate him'. Fourth, true humanity consists in the mastery of the ambiguous and threatening nature which confronts man. Fifth, man guides and transforms nature — the product of nature's evolution becomes nature's leader. This is a purposeful leadership, in which man realises God's purposes for his creation by controlling and harnessing the purposeless process of nature. Sixth, man is the master of nature. Human dominion is interpreted by <u>analogia relationis;</u> as God is the Lord over his whole creation, so he elects man as his representative to exercise his lordship in His name over the lower creation. Thus Genesis 1 and Psalm 8 show that

> 'God stands no longer on the side of nature over against man, but on the side of man over against nature.' (32)

Finally, nature has meaning and value for its own sake, apart from man. This acknowledgement functions as a corrective to possible distortions of the preceding statements about dominion and true humanity.

Berkhof then excludes two other conceptions of the human relationship to the cosmos. He excludes existentialist conceptions because they deny the importance of both nature and history; and he excludes

those views which 'biologise' man and 'naturalise' history by seeing man as nothing more than a product of nature, and which therefore cannot explain the moral and historical dimensions of human existence.(33)

(4) God's relationship to the cosmos. The view of human dominion as analogia relationis suggests that God's relationship to the cosmos is mediated through humanity alone. Nevertheless, God has his own relationship to the cosmos. (34) Conversely, the cosmos may be an instrument of God's revelation to man, though

> 'there is no direct encounter with God in the phenomena of nature'.(35)

Theologically, God's relationship to the cosmos can only be a secondary and speculative theme. For

> 'man is the junction, where all the lines between God and his earthly creation come together. The [biblical] world view is geocentric ... because revelation is addressed to man, and man bears no responsibility except for his own world'.(36)

(5) Science and technology. Berkhof says that nature's

> 'unconscious ends are now submitted to man's conscious planning';

that is, science and technology are ways of bringing order to the chaos of nature, of guiding and transforming it.(37) This is part of the lordship of the creation delegated by God to his image, for

> 'when Genesis 1:27 says that God created man in his own image, the whole passage 1:26-28 makes it clear that what is mainly thought of is man's dominion over nature'.(38)

It is clear that the human vocation in history is to pursue the subjugation of nature and humanity's emancipation therefrom, by means of science and technology. This is possible because nature has been desacralised and de-demonised and so become acessible to scientific and technological handling; and it is necessary because it is God's commission to man.(39) Christians should welcome and rejoice in the immense progress in controlling and using nature that science and technology have made possible, thus bringing

> 'relief to innumerable men in their struggle for life and [disclosing] innumerable riches for a deeper humanisation of mankind'.(40)

Berkhof does not give way to strident titanism, however. The achievements of science and technology are signs of the kind of life God intends for his children at the consummation, but for the present we live in a sinful world. He suggests that three critical questions must be put to the technical generation about their science and technology: What kind of dominion is being exercised? What are the aims of man's technical dominion? And what are its effects upon human existence? (41) There is sound ecological and humanitarian sense behind Berkhof's exposition of these questions, and they are as pertinent and necessary in 1982 as they were when published in 1965 (well before the impact of the environmental crisis on the C&S discussions, in 1971). For example, human dominion must be of such a kind that it permits nature to display her 'sister-aspect' to man; dominion for its own sake, which ignores this aspect of nature's sister-relationship to man,

> 'will hollow out and undermine his humanity'.(42)

Berkhof's pastoral observation is that

> 'Modern man is deformed. First he was enslaved to nature, now he is enslaved to his mastery of nature'.(43)

His general conclusion is that, with regard to technical development, man

> 'has to do not less, but more. But he has to subjugate his technical possibilities to the other relations of his life, instead of allowing technics to supersede these other relations. Otherwise he will lose as much as he gains, and in the long run he will lose far more than he gains'.(44)

This is the necessary complement to Genesis 1:28. The next quotation sums up Berkhof's theological assessment of science and technology and the human vocation in the cosmos.

> 'Technics are not sinful in themselves; on the contrary, they are a means towards fulfilling God's commandment. But they are a means in the hand of sinful man; ... the ambiguities in technics are in reality the ambiguities of man himself.'(45)

(ii) Discipleship in the technological culture.

It is evident from my account of Berkhof's paper that he represents one of the median positions in my survey of discipleship in the technological culture. There can be no simple opposition between Christian commitment and the technological culture, because that culture

is not evil in itself but is rooted and grounded in God's good creation and the commission he has given man. On the other hand, the technological culture is in the hands of sinful humanity, so it is not automatically good in itself either. Finally, Berkhof recognises the primacy of God's grace, the necessity of works of obedience, and the hope of redemption in Jesus Christ.(46) He therefore shares the common assumptions which characterise the church of the centre.

It is also evident that he does not represent the ambivalent type of response (Christ and the technological culture in paradox). He does not see the technological culture as a source of polarity and tension within Christian life, making life precarious and sinful, as the believer lives in the hope of a justification beyond history. Nor does he concentrate on the redemptive transformation of the present by the effective grace of God, as does the conversionist who sees Christ as the transformer of the technological culture. Instead, the expansion of the technological culture is the present task of humanity; the redemption and transformation of historical existence will take place only at the end, while in the meantime humanity strives to work out its obedience to God.

This suggests that the emancipatory approach represents a sympathetic attitude to the technological culture (Christ above the technological culture). This subsection intends to show that this is indeed the case, by examining Derr's book which deals specifically with the question of the technological culture in the context of the environmental crisis. As mentioned above, Ecology and Human Liberation starts from Berkhof's position and explores its implications for the environmental crisis.

Derr's attitude to the broader question of culture is of the Christ above culture type, which suggests that his attitude to the technological culture will be similar. And so it is. There is a basic harmony between the claims of reason in society and its institutions, and the claims of a Christian commitment based on biblical theology and ethics. With regard to the technological culture and the special issues of the environmental crisis, the social realities inherent in the questions of resource-sharing, monitoring of pollution, and the control of population size and rate of increase, all require action at the level of international cooperation within transnational institutions. These institutions provide humanity with the practical means to exercise its God-given dominion over the earth according to the stewardship ethic.

For the institutions, the important social question is,

> 'What style of life is compatible with both sound ecology and social justice?' (47)

In the limits to growth debate, Derr argues that it is

> 'nearly axiomatic that a growth squeeze will institutionalise poverty',

a situation which the Third World will naturally resist to the uttermost. (48) In fact,

> 'the tensions generated by such a situation will provoke a political and economic collapse of major proportions, perhaps well ahead of any likely ecological collapse'.(49)

Thus humanitarian and prudential considerations point to the need for a global policy which incorporates efforts to meet the needs of the Third World for development. Derr discusses this in a chapter titled 'Stewardship, Property and the Politics of Resource Sharing', in which he argues that the basic question is that of stewardship of the earth's resources for the good of man, and that the ethic of property and resource ownership must be interpreted in this light.(50) The social ethics of property ownership act as constraints upon human dominion, and therefore

> 'environmental policies rest unavoidably on a sense of fitting stewardship of God's creation'.(51)

The normative exercise of human dominion is the

> 'careful, socially responsible husbanding of all God's gifts',

and this makes a prima facie case for the equal sharing of the earth's resources.(52) This, in its turn, highlights the need for a substantial reordering of the international situation and structures of international economics.(53) In his next chapter, he shows how the theology of dominion and the ethic of responsible stewardship point in exactly the same direction as the humanitarian and prudential considerations noted above.(54)

The same agreement between social policy and sound theology may be noted in his discussion of population. The exponential growth in population will inevitably be curbed, sooner or later,

> 'by catastrophe if not by social forethought. We must, then, begin to limit our numbers now'. (55)

The humanitarian and practical reality is that

> 'even parenthood comes under the rule that no right is so absolute that it can be exercised without regard to other people'.(56)

This corresponds perfectly with Derr's interpretation of the biblical injunction to be fruitful and multiply and fill the earth (Genesis 1:28).

> 'We should note that the command comes as an integral part of the commission to man to "have dominion" over the earth, where "dominion" is the central point of the text. A certain population level is obviously needed to diversify and enrich life, making man's mastery a fact. But beyond a certain point the numbers of people have a reverse effect, so diminishing the quality of life that man's mastery over the earth is actually weakened. Overpopulation is the enemy of dominion, not its partner.'(57)

As in the question of resources and economic growth, the locus of the congruence between Christian commitment and the technological culture is found in the theology of human dominion. This is Derr's general position, as his interpretation of Genesis 1:26 - 28 shows; it

> 'intends a blessing on the works of civilisation by referring them to the divine command. ... Its wise and tempered humanism says that man is emancipated <u>from</u> nature <u>for</u> history, that he creates civilisation as a work with an historical dimension, a conscious shaping of the environment in accord with human purposes ... which must also show responsibility to God'.(58)

Derr shows the same positive esteem for science and technology as Berkhof does. They have made life more human for the average man, and opened up numerous

> 'humanising possibilities'.(59)

Man is the image of God, and therefore

> 'cannot live without exercising his non-natural dimension',

which means that

> 'man's dominion over nature must continue to be exercised, [though] with greater skill and wisdom than in the past.'(60)

Hence Derr shows that, like Berkhof, he believes that the image of God is the <u>desideratum</u> of human existence and finds its expression in the human enterprises of science and technology. They become the

expressions of man's true humanity. Like Berkhof, Derr shows that this is not titanism but a carefully controlled and restrained call to human dominion, qualified by the ethic of responsible stewardship. For Derr, however, the desacralisation of nature and its historicisation provide the only possible bases for ecological theology and for socially responsible, prudent, and humanitarian ethics. He discusses, and rejects, some of the alternatives proposed for theological response to the environmental crisis, and concludes that no other theological source is open. Man

> 'cannot ... abandon his responsible dominion over the earth without ethically unpalateable consequences'.(61)

Thus Berkhof and Derr represent the median response to the technological culture, which I call the sympathetic type; their central themes are the theology of human dominion and the ethic of responsible stewardship which qualifies it. The next subsection evaluates their position.

(iii) Evaluation.

Niebuhr's Christ and Culture evaluates the 'Christ above Culture' position as one which is 'necessary', but he adds that it is less than evident that it is the whole truth and nothing but the truth.(62) My account of Berkhof and Derr shows that the theological issues of the technological culture are very different from those of culture in general, which means that it is not possible to transfer Niehbuhr's evaluation of the Christ above culture approach and apply it straightforwardly to the sympathetic approach to technological culture. In fact, my assessment of the emancipatory position is that it is by no means necessary; and it remains an open question whether its benefits may be preserved by another theological approach which avoids the pitfalls of the emancipatory view.

Nonetheless, the emancipatory approach has several advantages, including the following:

First, it makes sense of humanity's increasingly extensive mastery of nature. As Berkhof points out, nature is ambiguous and seemingly purposeless. She is both mother and enemy to man, bringing forth thorns and thistles as well as flowers and grain. Hurricanes, floods, droughts, earthquakes, and fire are powerful examples of nature's

force and man's vulnerability. Against such potential hostility (which is part of nature's ambiguity), the emancipatory approach emphasises the achievements of human skill and ingenuity which enable man to control nature, in part, and to harness some of its power. Against the apparent purposelessness of nature, it emphasises the purposeful aspect of human existence, to bring nature to order and thereby to realise God's purposes in his creation. It therefore gives a theological interpretation of the human faculty for technology, and one which is particularly congruous with the experience of nature in industrialised societies. This interpretation is also highly plausible because it pays due respect to the uniqueness of the human species. Derr speaks of the vast achievements of human culture and the human spirit, and concludes:

> 'to affirm that man is special among creatures, a unique factor in the natural world, is not ... to be arrogant but to state the obvious';

while conversely,

> 'the uncontrolled wild remains a symbolic threat to us because it is the antithesis of the human.'(63)

This is exactly how technological man sees his relationship to nature. The emancipatory position is able to give a theological perspective on his uniqueness within the natural world, as the agent appointed by God to bring nature under control.

Second, the emancipatory position accompanies this perspective with the acknowledgement that humanity is biologically contiguous with nature. In essence, this is the biblical view of man, for the bible sees man as

> 'a unity of the biological and the spiritual, always both at once, never separate from nature, and never without his unique dominance over nature'.(64)

This acknowledgement serves to restrain the titanism involved in a one-sided emphasis on human dominion. It emphasises that the biosphere is to be nurtured and cared for in such a way that it (and the human biological species it contains) may exist in the ecological harmony for which it was created by God. Theologically, the acknowledgement also safeguards against possible deprecation of the body and matter generally which may arise from the emphasis on humanity's moral, spiritual, historical and technological transcendence over nature. Thus technology is part of the human purpose in history, with the proviso that

that it be pursued with respect for the wholeness and health of all God's creation. So this acknowledgement seeks to provide environmental and theological balance to the emancipatory position, thus protecting the biosphere and the necessary concern for global social justice, and giving priority to the needs of the human species should any conflict of priorities arise.(65)

Third, the emancipatory position is able to justify the involvement of Christians in the scientific, industrial, and technological enterprises. They are helping humanity to achieve, at least in part, the goals which God intends man to achieve within his creation. As the primal creation brought order out of chaos, so the human capability to manipulate and control nature may harness its chaotic forces for the benefit of both man and nature. There is no question here of potential conflict between Christian commitment and employment in the technological culture, in principle, though there may be conflicts arising in special circumstances such as engagement in a weapons research project.(66) The question of continual compromise does not arise either. Instead, the Christian may enjoy the many benefits of technological progress with a clear conscience and a grateful heart, and diligently play his part in furthering that progress; for the general aim of science and technology is to make humanity more human and so fulfill God's intentions for human existence.(67) The environmental crisis presents a clarion call to the the Christian to be involved in the technological culture and work for its reform along the lines governed by the theology of dominion, responsible stewardship, and their implications in terms of resource sharing, pollution control, and the control of population size and the rate of its increase. There are ethical problems in the scientific and technological enterprises, and areas which need reform (their benefits need to be distributed more evenly to all mankind, for example). But the ethical problems are not inherent in science and technology, they arise from the fallenness of the humanity involved in those enterprises. The Christian may therefore live with and involve himself in the technological culture without prejudice to his integrity. This is reassuring to those Christians who live in industrialised societies, where the technological culture circumscribes their existence and exerts continual pressure upon them.

In sum, then, the emancipatory position seems to be environmentally and theologically balanced, able to deal theologically with the realities of contemporary existence in the technological culture and its pervasive

influence, and able to rejoice in its significant benefits to mankind. Nevertheless, it has theological disadvantages which, in my opinion, render it unsuitable.

The first disadvantage relates to the view of nature which the emancipatory position holds. In every way, nature is distinguished negatively from man. Man has the image of God, nature does not. The historical character of human existence differentiates that existence from nature, for nature has Historie but not Geschichte. Nature is without apparent purpose, a chaotic power that needs to be tamed and brought under human control; this can be achieved through human science and technology within the context of God's purposes for man in history. Nature is a hostile force which holds man in bondage and which may threaten human existence. Man must gain his freedom from nature, he must emancipate himself. Thus the attempts made by Derr and Berkhof to qualify the titanism inherent in the theology of human dominion (as they interpret it), by affirming that man is biologically contiguous with nature, are drowned out by their other assertions about the great disparities between man and nature. This may be taken further. Man is closer to God than he is to nature. God is the God of history and purpose, man is a being who lives purposefully in history, whereas nature has neither history nor purpose. This raises the question of how nature may be related to God. Why has the God of order and purpose created nature in the orderless and purposeless form in which it meets man? If its disorder is the result of Adam's sin which disrupted the cosmic harmony, then it is perverse for God to deliver it to the sinner who continues to sin (and so continues to disrupt the cosmos) with a commission to restore order.(68) Given the great disparity between humanity and nature to which this position holds, and the contrast between the character of nature and the character of God, it is only a short step to the deprecation of nature. This tendency is already evident in this approach. The doctrine of creation relates to history and not to the matter of the cosmos, except in a derivative and secondary way. Even further, the language used of nature has overtones which indicate that it may be 'demonic'. It is a power of chaos, with which humanity must contend, and strive to conquer; a power which holds man in such bondage that when he liberates himself from it, he becomes more human; and a power which will be made perfectly subservient (to man) in the eschatological Kingdom. Dualism is just around the corner from this approach, which is tempted to deny the doctrine of creation at its material heart. This weakens the theological grip of the stewardship concept on which the emancipatory approach relies so heavily for its environmental ethic.

Second, the emancipatory approach welcomes technology because it makes man 'more human' and opens up greater possibilities for 'humanisation'. What are the criteria here? None are given, and only one is implied, namely that technology may make human existence more comfortable for those who enjoy its benefits.(69) This comfort is the fruit of liberation from the tyranny of nature. But in Berkhof and Derr, the human is defined in terms of history, purpose, and relationship to God; so it is hard to see how technology can affect these any more than any other area of daily human conduct and enterprise may. What has happened instead, is that a presupposition about technology has been smuggled in to the theological discourse from somewhere else. I contend that it is Bacon and Descartes who have been the main influences here. Derr's attitude to the emancipatory potential of science and technology may be compared with Descartes' famous sentence: with

> 'the general good of all mankind'

in view, Descartes published his Discourse on the Method because his analysis showed him

> 'that it is possible to attain knowledge which is very useful in life, and that ... we may find a practical philosophy by means of which, knowing the force and action of fire, water, air, the stars, heavens, and all other bodies that environ us ... we can employ them in all the uses to which they are adapted, and thus render ourselves the masters and possessors of nature'.(70)

Mastery and possession are not far from Derr's interpretation of the Fall and of human dominion, though he gives the former a Pelagian twist:

> 'if there is environmental significance in the account of the Fall , it must lie in the corruption of man's dominion over the earth. Recovery, redemption, lies not in abandoning man's mastery but in restoring it to the Creator's design.'(71)

This may be compared with Bacon's statement that the advancement of science

> 'is a restitution and reinvesting (in great part) of man to the sovereignty and power ... which he had in his first state of creation'.(72)

In other words, the prelapsarian dominion lost through Adam's sin may be regained through science and technology, and Derr follows Bacon's lead. This is why technology makes man 'more human'; in

regaining dominion through his technology, man becomes more like the prelapsarian Adam and therefore undoes some of the damage wrought in human nature by human sin. Berkhof and Derr have thus unwittingly allowed their position to come perilously close to Pelagianism.(73)

The emancipatory position therefore combines technological optimism with great confidence in the redemptive value of human effort. This leads them to take a 'soft' view of the effects of human sinfulness.(74) On the one hand, the biblical theology on which both Berkhof and Derr take their stand makes it plain that human sinfulness is a destructive and distorting force to be reckoned with in all aspects of human endeavour, and they acknowledge this. On the other, they show great optimism about the human spirit. So Derr says that

> 'the human situation remains ambiguous for the foreseeable future, and we must never discount the effects of sin, of man's capacity for evil. Perhaps immediate optimism is not very wise, but neither is despair. Historical humanism never forgets the capacity of the human spirit to triumph over adverse surroundings. ... [The 1969 moon-landing] was a genuine triumph of the human spirit [but it only] said what the history of science is always saying, that man's possibilities are ever evolving, that his future with nature is open. ... [The biblical vision is] that the whole of creation awaits its redemption. And in the evolution toward "new creation" man is to be the priest of the transformation.'(75)

Such an optimism fails to reckon with the measure of human sin which inevitably accompanies and sometimes impels technological progress, and qualifies its value to both man and nature: exploitation of labour, the maintenance of unjust international trading structures for the sake of vested interest, decision-making in the interests of profit and short-term expediency at the expense of long-term risk, environmental mismanagement, and the use of technological power for oppression. The C&S discussions make it quite clear that this is the aspect of the technological culture which is most evident to the Third World, who subsidise the cost of the liberating and humanising effects of technology in the developed nations.(76) It is clear that both Derr and Berkhof are compassionate and socially concerned Christian men. But it is equally clear that the inadequacies of their theological position force them into the invidious situation of sweeping this cost under the carpet.

The emancipatory position has followed Bacon and Descartes in another respect as well. It sees technology and its culture in substantial alignment with God's purposes for humanity and nature. Human science and technology, qualified by the ethic of responsible stewardship, enable man to exercise his dominion over nature, to benefit his fellows, and to bring order to the chaos of nature in line with God's intention for its ordering and subservience to man. It does this by interpreting science and technology through the imago Dei and dominium terrae traditions. This interpretation is confirmed by the dominion over nature which Jesus exercised in the course of his earthly ministry. He was the image of God in the fullest sense, and the human to whom eschatological humanity will be conformed, so that dominion is seen to prefigure the dominion which eschatological humanity will exercise.(77) The spectacular success of science and technology adds plausibility to that interpretation. It may be questioned on the grounds that it equates technological progress with growth in grace, thus making industrialised nations 'more Christian' than the under-developed; to which the Third World can counter that technological development depends on exploitation, oppression and injustice, and is therefore a sign of spiritual malaise if it bears any relation at all to spiritual condition. But this interpretation is weak at another point. It fails to do justice to the breadth and complexity of the biblical witness about humanity's relationship to the cosmos. Humanity lives in the regularity and rhythm of the creaturely world as one of its creatures and alongside its fellow-creatures, because God has willed that this should be the sphere of his life and that these rhythms and regularities should mark out the boundaries of their common existence. So humanity's historical existence is that of a creature among creatures (Psalm 104, Job 38-42); and the eschatological Kingdom inaugurates humanity's peaceful coexistence with nature (Isaiah 11: 1-9, Revelation 21: 1-4, 22: 1-5, etc.).(78) Thus it would be more faithful to the biblical position to interpret science and technology within the context of 'harmony' and avoid the more aggressive nuances of 'subjugation'. Derr overstates the case when he says that

> 'true harmony with nature, a sound balance between man's needs and environmental preservation, requires the subjugation of nature by all the technical wisdom we can summon'.(79)

The biblical testimony implies that humanity's technological dominion may be exercised within the constraints of harmonious coexistence with nature,

as far as that is possible within the historical circumstances. Derr and Berkhof have followed Bacon and Descartes in reversing the biblical order and stating that harmonious coexistence can only be achieved through the exercise of dominion.

It is evident that the emancipists have canonised Bacon and Descartes. Their assumptions lie behind this position's sympathy between Christian commitment and the technological culture. The technological enterprise must be developed so that humanity regains the mastery and possession of nature, and the dominion which it lost through Adam's Fall. Recovery and redemption lie in the restoration of man's mastery over nature according to God's design.(71) All this takes place within the framework marked out by Bacon and Descartes. It means that the work of obedience to God may consist simply in orienting the human scientific and technological enterprises towards achieving the cultural ideals implicit in that framework. Thus the emancipatory position suffers the persistent temptation from within, to become cultural Christianity (the approach Niebuhr described as 'The Christ of Culture' approach). It becomes a precarious position to maintain, as its own internal logic exerts a centri-fugal rather than a centri-petal force and thereby jeopardises its coherence and consistency.(80)

The clear implication of my argument so far is that this position is not worth maintaining because its advantages are qualified by numerous and significant disadvantages. Moreover, it is not really an option for a contemporary ecological theology which attempts to remain close to the biblical witness as Derr and Berkhof did in their time, since recent biblical studies have deprived this position of its exegetical support.

The emancipatory position takes Genesis 1:26 - 28 as its main text, as the most important one defining the human relationship to the non-human world according to the divine intention in creation. Man is made 'in the image of God', and this is interpreted by identifying the command to dominion with the possession of the image. As Berkhof puts it, the 'image' is the 'dominion'.(81) This by no means the only possible interpretation of the image concept.(82) The actual text, however, is notorously difficult to interpret, precisely because it is the locus of unspecified ideas which remain undefined in the Old Testament and whose meanings must be inferred from all the pertinent information available (linguistic and archaeological studies, and a

knowledge of the religious customs and beliefs of other ancient Near Eastern cultures). Dominion over the cosmos is certainly a fact within the text, but its interpretation and connotations and significance can only be established within the limits of the text itself and the canons and parameters of exegetical method. Recent Old Testament scholarship suggests that they rule out the emancipatory position's simple equation of the image of God in man with the human dominion over nature.(83) One scholar argues that there is no explicit definition of the imago Dei, and therefore that the author was either referring to something already so well known to his readers that it needed no elaboration or, more likely, that he was being deliberately but reverently vague. Thus the author of Genesis 1:26 - 28

> 'believed it to be of less importance to spell out exactly how man resembled God and the divine beings, than to make the emphatic statement that, however distinct the creator is from his creatures, he nevertheless chose to reveal some of his transcendent nature in man, the crowning glory of his creation.'(84)

That is, it is not the interpretation or the content but the fact of the resemblance which is important. This effectively deprives the emancipatory approach of its exegetical support. It is no more or less 'necessary' an approach to the theological question of technological culture than any other.

It is significant that the emancipatory approach was dominant in the C&S discussions until the 1973 Zurich working party on science and technology, when it was rejected on grounds which stemmed from the environmental crisis and the 'limits to growth' debate.(85) That is, it was rejected on practical rather than theological grounds. The next section considers whether its replacement, the 'theology of hope' approach, is any more successful theologically than its predecessor.

3. The 'theology of hope' approach.

The 'theology of hope' in the C&S discussions represents a conscious response to the ecological crisis. I named it the 'theology of hope' approach, because it added an eschatological dimension to the theological consideration of humanity's relation to the cosmos. The emancipatory approach had taken the dominion relationship as the focus for its eschatological thought about the human relationship to nature; by contrast, the theology of hope compares the present condition of the world with the eschatological future promised by God, and derives guidelines for present action from its understanding of the eschatological goals such action should seek to realise. Its approach is similar to that of Moltmann's Theology of Hope, described in Chapter One, section 3(iii) above.

My aim in this section is to let the representatives of the C&S theology of hope speak for themselves, to evaluate their ecological theology, and to explore their answer to the theological question of technological culture. The approach was first put forward in the C&S forum by Langdon Gilkey, at the Bucharest Conference in 1974.(86) Since then, both Liedke and Baker have covered similar ground but in greater depth. My primary sources for this account of the C&S theology of hope will be Baker's paper to the 1977 Zurich theological consultation and Liedke's paper at the MIT conference; supplemented by extensive reference to Liedke's Im Bauch des Fisches (on which his MIT paper was based), with occasional references to Gilkey's paper on technology to the 1973 Zurich working party, and that part of the Bucharest report from his hand.(87) This section will follow the procedure outlined in Section 1 above, namely an exposition of the primary sources, the discussion of discipleship in the technological culture, and the evaluation of their approach.

Though I have already referred to a similarity between Moltmann's and the C&S theologies of hope, my survey will not be concerned with Moltmann's work. I am not seeking to establish relationships, dependency, correspondences, or dissimilarities, or in any way to link the one with the other. Instead, I take the theology of hope as it stands in the C&S discussions, since they are the explicit concern of this thesis.(88)

(i) Exposition.

The exposition of the C&S theology of hope will be based on the five questions listed in Section 1 above.

(1) The cosmos. Liedke's book is a protest against the loss of nature from the theological discourse. The doctrine of creation has entered a phase in which it has nothing to do with nature, but has become instead a datum for the interpretation of history.(89) This has had disastrous consequences for theology and for environmental ethics as well. In concentrating on history and on the relationship between God and man, theology has lost sight of the biological aspect of human existence and its implications. In retreat from science, theologians have left nature to the scientific and technological enterprises and given no guidelines for scientific and technological conduct nor any reason for the exercise of environmental restraint.(90) This has been exacerbated by the Western Christian acquiescence to Descartes' separation of man from nature (res cogitans, res extensa) and his Pelagian interpretation of human dominion.(91) Therefore theology needs a reconstruction which will reinstate nature as a theme of theological discourse, reinterpret the doctrine of creation with the material world in mind, reinterpret the dominium terrae tradition with a view to the ecological constraints on human existence, and which will use an 'ecological exegesis' of the biblical texts when this is appropriate. Such ecological exegesis is based on the need to coordinate modern exegesis with the scientific understanding and interpretation of human existence in the cosmos; I will give an account of it in subsection (iii) below.(92)

Liedke uses ecological exegesis to understand the creation texts of Genesis 1 and 2. The cosmos is ecologically structured, and this is evident in the Priestly account of the creation in which each creature is assigned to the habitat created for it by God. Thus the stars (not dead bodies, in the ancient thought, but living beings) are assigned to the heavens, acquatic animals to the sea, birds to the air. There is no overlapping of habitats, except with the land habitat which is to be shared by humanity with the land animals. Such an assignment contains the potential for disputes about food and living space.

(2) The cosmos in eschatology. The ecological structure of the cosmos and the possibility of conflict that that structure implies was established in the beginning. The mechanism for conflict resolution

which had been built at the same time has, however, broken down; the result is a 'good' creation marred by violence.(93) This violence begins with man and affects the entire creation; it characterises the present cosmic existence. The eschatological promise of God is that this violent conflict will be resolved and removed (Isaiah 11:1 -9, Romans 8:18 - 22).(94) Thus the nonhuman world has a peaceful eschatological future. It is based on the resurrection and redemption accomplished in Christ, which shows that the peace is preceded by a radical transformation. Thus Baker states that

> 'the kind of transfigured eternal existence promised to humanity in the resurrection of Jesus is to have its counterpart in the transformation of the cosmos';

which Liedke confirms —

> 'Die Rettung des Menschen in Christus vollzieht sich ... auf dieser Erde, in dieser Welt. Deshalb ist auch dieser Kosmos in Rettungsgeschehen einbezogen. ... Gottes entgültiges Ja zu seiner Schöpfung in Jesus Christus kann die Weltangst nehmen'.(95)

None of the representatives so much as discusses the eschatological future of 'dominion'. Instead, the emphasis is on the eschatological harmony and the transformation of the cosmos adumbrated in the ressurrection.

(3) The human relationship in the cosmos. This has five aspects. First, the approach emphasises the biological contiguity of the human species with the cosmos from which it has evolved, and the ecological constraints this contiguity imposes on human existence (see no.1 above). At the same time, it recognises that the imago Dei and dominium terrae traditions are to be taken seriously, rightly interpreted, and their implications for humanity's relationship to the cosmos explored.(96) Second, as noted in no.2, humanity is the source of the disruption of the ecological harmony established in the cosmos at its creation. Third, the approach emphasises that humanity is technological by nature. This is a fact of experience as well as of biblical testimony; thus Liedke argues that

> 'die Beendigung der Manipulation der Natur ... nicht die geeignete Therapie [ist]. Sie würde den Menschen eines wesentlichen Elementes seines Menschseins berauben. Der Mensch hat — seit er existiert — immer die Schöpfung manipuliert'.(97)

Fourth, nature itself is a source of guidance for the human activity in and manipulation of nature. The human interaction with nature must

learn from the intricate character of its order, respect and preserve that order, and adjust its technology towards that preservation and respect. (98) Fifth, humanity's relationship to the cosmos can only be understood by reference to the person and work of Christ. As noted in no.2, resurrection and redemption give hope for the eschatological future of nature as well as of humanity. Christ's life provides material for an environmental ethic and anchors the eschatological hope for the whole creation in the events of history:

> 'Christus selbst, sein Umgang mit Mensch und Welt, ist das Vor-Bild für unser Umgang mit der Schöpfung Gottes'.(99)

(4) God's relationship to the cosmos. God is the creator, and all his creation depends on him for its existence. Humanity is equally 'creature' with all other creatures. Liedke's policy about the use of the word Schöpfung states this clearly:

> 'Der Titel Schöpfung soll ... zum Ausdruck bringen, daß nichts in der Natur, in der Welt, unabhängig vom Schöpfer sein und gedacht werden kann.'(100)

He emphasises that

> 'der Mensch Teil der Schöpfung ist'.(101)

Unlike the emancipatory position, however, God's relationship to nature is not necessarily concentrated on man. The cosmos exists for its own sake and for the sake of God's delight in it, rather than as raw material which is to be vanquished and shaped by humanity according to God's purposes.(102) God's eschatological relationship to the cosmos is mediated through the man Jesus, the first born of all creation (Colossians 1:15)

(5) Science and technology. Humanity generally is differentiated from the animals by being God's image upon earth, and

> 'just as God rules his world with care, so man is to rule the animals and cultivate and preserve the earth'.(103)

The lesson of the environmental crisis and the human experience of science and technology is that humanity has failed to exercise the care required. It must now reduce its technological manipulation of nature, and work for its salvation and transformation according to the character of its creator.(104) The human vocation with nature is to deal with it in such a way that its intricate complexity and life are cultivated rather than jeopardised wantonly and unnecessarily:

> 'Die Herrschaft über die Tiere und die Erde dient dem Leben des Menschen und der Gesamtschöpfung... und gehört in den Rahmen des Segens [Gottes]'. (105)

This will be a step towards the harmonious coexistence of man and nature promised for the eschatological Kingdom. But it is only a step. That harmony

> 'ist für das Endgeschehen verheißen (Jesaja 11) [und] kommt aber nicht durch das Handeln von Menschen, sondern durch die Tat Gottes zustande'.(106)

Baker concludes his paper by saying that

> 'our responsibility towards nature cannot be fulfilled simply by developing our positive and creative skills; it also involves denying ourselves and taking up the cross daily. All we can do will not be enough of itself to turn earth into paradise; but that after all is something for which we have to wait upon him who is both Alpha and Omega. The new heaven and earth are not of a kind to be evolved on our drawing-boards; all we can hope for here are images and foreshadowings of them'.(107)

Thus the human vocation in the cosmos permits the restrained and careful pursuit of technology and science, but with the caveat that these efforts cannot achieve the state of harmonious coexistence between humanity and the cosmos which God desires in his creation. This is grounded in the eschatological promise of God, adumbrated in Christ and his resurrection, and extended in the New Testament to the whole cosmos; it is also grounded in God's blessing given at the creation, and in the awareness that since God rules his world with care, man is to rule it carefully as well.

(ii) Discipleship in the technological culture.

The preceding account makes it clear that the Baker-Liedke theology of hope represents one of the median positions in my survey of responses to the theological question of the technological culture. It shares the common ground which characterises the median: it affirms that God's creation is good and that technological culture is an inescapable dimension of human existence within that good context; it acknowledges that human sin is universal and pervasive in its effect, and extends that effect into the whole created order; and it recognises the primacy of God's grace, the necessity of works of obedience, and the hope of redemption in Christ.

It is also evident that Liedke and Baker do not represent the 'sympathetic' approach to the technological culture. They do not interpret science and technology as works of obedience to the divine injunction of Genesis 1:28, simpliciter. They do not see science and technology as enterprises which make humanity more 'human' or as one of the principal means by which God's purposes in the cosmos may be brought to fruition. Gilkey, Baker, and Liedke agree that this is the lesson of experience, namely that the technological culture cannot be simply equated with the opus Dei.(108)

Is the theology of hope a representative of the 'ambivalent' type of response? That type of response recognises that the technological culture is inescapable and therefore lays its own claims upon the individual believer, and adds that those claims are continually in conflict with, or tend to compromise, his loyalty to Christ. Thus the Christian lives in a polarity and tension which arises from the nature of the technological culture which God has allowed man to establish; he resolves this polarity and tension in the hope of redemption and transhistorical justification. But Gilkey and Baker and Liedke give rather positive accounts of the technological culture. It is a means by which humanity may thrive upon the bounty of the earth, yet at the same time preserve and increase that bounty for future generations. It enables man and nature to live in harmony, and provides the means by which nature may be brought to reflect, in part, the character of its creator. This shows that a positive correlation exists, at least in principle, between God's purposes for humanity and the cosmos on the one hand, and the ideal functioning of the human technological enterprise and the technological culture on the other.(109) This ideal functioning is marred by sin, so that there may be conflicts in practice, between the claims of obedience to Christ and involvement in some aspects of the technological culture. Gilkey states that these conflicts originate in the fallenness and consequent ambiguity of man, and not in the nature of the technological enterprise itself; the only hints of a negative statement about technology in Baker's paper are his comments that it will never discover the way to 'wisdom' or bring in the eschatological Kingdom: Liedke's attitude is that science and technology have gone astray because they built their enterprise on an unsound philosophical and theological foundation, so that the appropriate remedy is to change their understanding of the relationship between humanity and nature and thus put them on a firmer foundation.(110)

The C&S theology of hope is therefore fundamentally different from, and more positively oriented towards the technological culture than, the ambivalent approach (which sees Christ and the technological culture in paradox).

Instead, the theology of hope sees the potential of human existence (and the technological culture in which it is inextricably involved) in terms of an existence transformed by the grace of God effective in present history, and enabling life within the context of the technological culture to be oriented towards and to be lived for God's glory. This is particularly evident in the christological-eschatological understanding of the human relationship to the cosmos; in Liedke's solidarity-in-conflict ethic in which the Christians represent the incarnate hope of redemption for the whole creation; and in the recognition that human technological achievements, though inadequate in themselves, may foreshadow the coming of God's Kingdom. (111) This kind of theology thus looks for the fruits of redemption to be manifest in contemporary historical existence and in the technological culture in particular. Its focus is on the eschaton and on the eschatological promises; in the light of faith, they show the bearings for contemporary action. Thus the C&S theology of hope exemplifies the conversionist type of answer to the theological question of the technological culture.

(iii) Evaluation.

The theology of hope, represented in the C&S discussions by Gilkey, Baker, and Liedke, has a number of points in its favour. It takes theological account of the human contiguity with nature; it safeguards the unity of God's action in creation, redemption, and consummation; it allows for an environmental ethic on a theological basis, but which also corresponds to the environmental ethic deemed appropriate on practical considerations; and it is well grounded exegetically, taking account of the fullness and complexity of the biblical testimony about God, humanity, and the cosmos. I will deal with each of these in turn.

Both biblical texts and modern science show that man exists as body and 'soul' in some sort of differentiated unity. The emancipatory position, because of its adherence to the Cartesian division of reality into res cogitans and res extensa, faced a coherence problem at this point. It needed to maintain the unity of human existence,

yet emphasise the superiority of the mind over the material world; there was a persistent temptation to make human life in the world 'ghostly' by concentrating on its mental, moral, and historical aspects, thus bringing dominion to prominence at the expense of ecological vulnerability. The C&S theology of hope, however, starts from the environmental crisis and its accompanying question of human survival, and therefore takes the corporeal aspect of human existence very seriously. Humanity is seen as a biological species, as subject as any other to the ecological laws of survival and coexistence with other species. This is given theological interpretation in Baker's wide-ranging exegetical survey, and in Liedke's proposal for an 'ecological exegesis'.(112) Such exegesis represents an attempt to take all the information available about human existence and relate it to the biblical testimony and its theological explication:

> 'Eine Auslegung, ... die die Natur als oikos (Haus) des Menschen und den Menschen als zum oikos anderer Lebewesen gehörend ansieht, nenne ich eine ökologische Auslegung'.(113)

Liedke devotes a lengthy chapter to the ecological exegesis of the Old Testament texts relating humanity and nature, and the creation sagas in particular.(114) He therefore allows for the human distinctiveness in nature, and also for new interpretations of the imago Dei and dominium terrae texts within the constraints of humanity's biological contiguity with nature. Thus the dominion and image themes are not permitted to compromise the other theological truth about man, that he is created as a biological species.(115)

The approach safeguards the unity of God's relationship to the cosmos. The Creator and the Redeemer are one, and the work of the Spirit in humam history is aligned to the consummation of that history. Thus the creation's hope may be founded in God the Creator, and the focus of that hope may be located in the redemptive work of Christ, his resurrection, and the ultimate consummation in which the kind of transfigured eternal existence promised to humanity in Christ's resurrection will extend to the transformation of the entire cosmos. The environmental crisis has drawn attention to the present condition of the world, which some theologians have interpreted in terms of nature's bondage to futility and decay, and its groaning as it awaits its liberation (Romans 8:19 - 22). This theology of hope interprets these groans as groans of a suffering which will bear fruit and whose fruitfulness is

guaranteed by the resurrection — they are not the groans of futile and hopeless anguish. Thus the future becomes a realm of hope rather than of despair, for both humanity and nature.(116) This hope is grounded in the faithfulness of the Creator to his creation, and of the Redeemer and the Spirit to the eschatological promises implied in Christ's resurrection. In safeguarding the unity of God's relationship to the cosmos, this theological position also gives hope and meaning to contemporary historical existence in which the circumstances could easily induce nihilism and paralysing despair.(117)

It also yields a plausible and appealing environmental ethic, in accord with the practical assessments of the situation. Humanity engages in technology as part of its humanity, but technology itself is not denounced. It is possible, at least in principle, to harness technology for the purposes of human development and wellbeing. Unlike the emancipatory approach, the theology of hope is able to draw the line and say that technology has gone far enough: it must now reduce its manipulation of nature, for nature's sake and for the sake of humanity as well. Further, this neutral attitude towards the technological enterprise allows for economic growth and technological development in the areas of the Third World where this is appropriate, and for the technological restraint in the overdeveloped world which the environmental crisis and the limits to growth thesis have shown to be necessary. It is more amenable to the World Council's goal of the Just, Participatory, and Sustainable Society than its emancipatory predecessor in the C&S discussions. This is only because the theology of hope has chosen not to align itself with the development of the technological culture, and this choice is the source of its ethical strength with regard to science, technology, and the environment.

Another aspect of the theology of hope ethic is that it allows for Christian participation in the daily affairs of the technological culture. Liedke's approach implies that the Christian may work to God's glory in a scientific or technological way, by developing technological processes which are appropriate environmentally, and so awaken to new life the creation's hope of freedom.(118) Baker speaks of a work of salvation to be done in nature, so that it reflects more perfectly the character of its creator; and of the need to adjust technology so that it preserves and cultivates the intricate character of nature's order.(119) These are tasks in which a believer may immerse himself, with a clear conscience.

Finally, this approach has good exegetical support. This is evident from Baker's paper, which attempts to describe and interpret the manifold complexity and diversity of the biblical testimony about humanity in its relationship to cosmos and creator. Both Baker and Liedke have attempted to seek new theological bearings in the environmental crisis by turning to the scriptures and interpreting their testimonies with the current situation in mind; this is the nub of Liedke's ecological exegesis. The basic principle of the theology of hope approach is also exegetically sound. God has made promises to his creation and to human existence in history, and he has proved faithful to his promises. The Kingdom of God is bound up with the promises of God, and there are promises which may be described as 'eschatological promises' — such as those which promise harmony between humanity and nature, or those which speak of the radical transformation of the human body in the resurrection of the dead. The theology of hope is based on the exegetical observation that the Kingdom is inaugurated already in Christ and is present proleptically in contemporary existence. This means that the eschatological promises are not remote, or irrelevant to daily life; instead, they give meaning to that life, meaning which is discernible by faith. Thus faith discerns how to act and live in the world according to God's ultimate purposes for the world and its history. The C&S theology of hope is therefore congruent with the biblical witness, both in its basic principle ('the Kingdom of God is at hand') and in the detailed outworking of its implications with regard to humanity's life in and relationship to the cosmos.

It is evident that this theology of hope is of great merit in dealing theologically with the environmental crisis, in providing a foundation for environmental ethics, and in preserving some necessary Christian truths. It is a theologically necessary response to the question of the technological culture. In its own way, it has the same advantages as the emancipatory approach, but without its crippling disadvantages. Nevertheless, the C&S theology of hope must also be called into question.

Advances in science and technology have enabled Western industry to transform nature into something over which man has considerable control: the environment of Western industrialised man reflects his enterprise, his ingenuity, and his power to transform. The theology of hope looks to an eschatological transformation of nature on the basis of the promises implied in the resurrection of Jesus. But there is no way of relating these two different types of transformation. The resurrection is God's act of discontinuity in the world's history, inaugurating the eschato-

logical Kingdom; the flesh is the link between contemporary historical existence and the transfigured existence in the Kingdom. The act of resurrection marks out the freedom and radical discontinuity of God's activity in comparison with human capability. Thus the tension between what is and what ought to be (on the basis of the eschatological promises), the tension which is to guide contemporary life and action and the life of the technological culture in particular — this tension provides no criteria for action. As at Good Friday, human activity can only wait for God's response to the situation. It cannot decide how it may imitate the resurrection process through its own scientific and technological enterprises, or use the paradigm it provides, in order to start realising the eschatological goal of resurrection for the cosmos in its present crucifixion of human and environmental suffering. The criteria for present action cannot be found in the crucifixion-resurrection paradigm; they must be sought elsewhere. This becomes clear in Liedke's presentation. He concentrates on the need to reduce the technological manipulation of nature. This is based on his ethic of solidarity-in-conflict, which in its turn is drawn from a sociological theory of conflict amelioration applied to the situation of conflict between man and nature which his ecological exegesis has discerned.(120) It is clear from the course of his ecological exegesis, however, that the conflict motif has been imported from elsewhere and allowed to dominate and shape the exegesis; Liedke's concern for technological restraint (which has its origin in his understanding of the environmental crisis) has determined the results of his exegesis and allowed him to 'prove' what he had already assumed.(121) Thus his theology of hope is not grounded pre-eminently in the promise of the resurrection and its implications, but in his own prior understanding of the contemporary situation. His example shows that the C&S theology of hope is vulnerable to exactly the same criticism that was levelled against Moltmann's early theology of hope with reference to the theology of revolution: it provides an apparently theological cloak for fashionable dynamic activism or, in this case, fashionable environmental concern. It is the same problem for both Moltmann and the C&S theologies of hope: the problem of giving specific content to the eschatological promises in the contemporary historical situation.(123)

This may also be seen in the section on eschatology and futurology in the report of the 1977 Zurich theological consultation. It is dominated by the C& S theology of hope, and shows how difficult it is to translate

this type of theology into the concrete and practical situation. It states that the contemporary task is that of discerning

> 'what is our present state in regard to the Heilsgeschichte, what is our duty in the new future for the building of the Kingdom of God, and what are our eschatological hopes'.(124)

Christians must act now, on the basis of what they discern by faith. But then the report dissolves, immediately, into vague generalisation. It concludes with an exhortation which has neither substance nor direction:

> 'Prophetic pronouncement of the final destiny of man in nature presents a vision and not a scientific discernment. Man needs such a vision of his destiny. More than ever before in our days eschatological faith only presents us the set of coordinates for human activity today and tomorrow. The establishing of a specific and provisional eschatology may be necessary in every period of church history. But certainly it is our task in the present. It is within this set of coordinates that the Christian hope finds new meaning for the achievement of science and technology. Concisely our awareness of the possibilities opened up by science and technology helps us to discern this set of coordinates.'(125)

This is a call to action, to relate the theological vision to the contemporary situation. My argument is that the problem of their relation cannot be solved by the theology of hope, because it leaves the fundamental problem untouched, and therefore needs to be supplemented. This quotation from the Zurich report assumes that there is some correlation between human achievements and prospective advances in science and technology, on the one hand, and the eschatological faith: science and technology provide the supplement needed, but at the expense of the discontinuity between this world and the next. Liedke has supplemented his theology of hope by his a priori decisions about 'conflict' and the need for technological restraint.

What other supplements are available? They are only available (by hypothesis) in contemporary historical existence, as that is interpreted by science, technology, history and the social sciences, philosophy, exegesis, and theology. In theology, they all take their orientation from the beginning, from the understanding of God's purposes for humanity and the cosmos as laid down in the creation texts and interpreted perfectly in the life of Jesus. This is a perfect summary of Baker's approach. What it means, however, is that it becomes an

eschatologically-conscious version of another type of approach based on the doctrine of creation, and loses its character as a 'theology of hope'. The internal logic of the 'theology of hope' exerts a centrifugal rather than a centripetal force, and compromises its integrity.

The C&S theology of hope represents a conscientious and deliberate attempt to address the environmental crisis theologically, which has many advantages as theological discourse. But it is unable to touch the problem at its heart, the need for theological direction to practical action, and so it becomes a purely theoretical construct. It has nevertheless succeeded in becoming the dominant theological approach in the C&S discussions relating to the environmental crisis and ecological theology.

The emancipatory approach and the theology of hope which replaced it are the 'major' theological approaches in the C&S forum. I turn now to the two 'minor' approaches represented there, and associated with the individual contributions of Charles Birch (section 4) and Paulos Gregorios (section 5).

4. Charles Birch and process theology.

One 'process' ecological theology has already been described in this thesis — that of John B. Cobb, Jr., introduced in Chapter Two, section 4 (ii). It was stated there that Cobb's theological stance could serve as a suitable introduction to Birch's approach, and that the articulation of the process stance within the C&S forum had concentrated more on ethics and science-theology dialogue than on specifically theological statement of its position.

The latter claim may sound somewhat surprising, because the C&S discussions have included the contributions of several eminent representatives of process theology: John B. Cobb, Jr., and David Ray Griffin, who are directors of the Center for Process Studies, in California; and Charles Hartshorne, pioneer of the systematic theological adaptation of A.N. Whitehead's process metaphysic. Cobb and Griffin contributed to the debate provoked by Derr's Ecology and Human Liberation, which had contained an account of process theology that the process theologians were eager to correct.(127) That was Griffin's only contribution to the C&S programme. Cobb collaborated with Birch to produce a joint paper for the 1974 Bucharest Conference, to which I will refer in my exposition, but otherwise Cobb has been absent from the C&S scene.(128) Charles Hartshorne made his only contribution at the 1977 Zurich theological consultation, with an inconsequential and somewhat peripheral paper.(129) Birch's paper to that consultation was far more convincing and much better articulated. Birch has been the most prolific and consistent representative of the process theology stance within the C&S discussions, while Hartshorne, Griffin, and Cobb have supported it from the sideline.

Birch's contribution has been more ethical than systematically theological. This is particularly evident in his addresses to the Nairobi Assembly and to the MIT conference.(130) There, the message is that the dominant mechanistic world view of science and technology, to which theology has adapted itself 'uncomfortably', is wrong and leads to ecological disaster; that science is now changing its world view under the pressure of its own development and analysis of the world and for the sake of consistency with its own internal logic; that theology needs to pay closer attention to this new world view,because this will bring humanity, nature and God into unified and coherent perspective, and point the theological path to ecological good sense.(131)

Birch's theological contributions are all variations on the one theme, spelled out in his 1965 book Nature and God and reiterated in two articles for biologists published outside the C&S context.(132) I have chosen to concentrate on one of those articles, namely his paper 'Participatory Evolution: the Drive of Creation', which appeared in 1972. This will be supplemented by references to his other works, in order to elucidate more fully themes that were touched on but not developed in that paper, or which were not discussed there at all.

(i) Exposition.

The philosophical and theological assumptions underlying process theology have already been introduced in Chapter Two, Section 4(ii) above. So my exposition may focus on the five questions listed in Section 1 above, and highlight emphases and attitudes which complement the exposition of Cobb's ecological theology already described in Chapter Two.

(1) The cosmos. Birch views the world and its structures and processes from the specialised vantage point of the evolutionary biologist. That perspective has shaped his theology in a definite direction, though it is not his starting point. In the preface to Nature and God, he states that he would not have written

> 'had I not discerned something for myself that makes sense of the world of specialised knowledge in which I live',

and tells of how he discoverèd Whitehead, Hartshorne, and Tillich, when he was

> 'a young research student, dissatisfied with the answers of what called itself orthodox Christianity, and excited about science'.(133)

In the C&S programme he stated that, as a biologist, he was

> 'little interested in a theology that does not contribute a dimension of understanding to the facts as we know them in biology. Process theology ... does this at least for me and some of my colleagues'.(134)

The cosmos itself poses three fundamental questions to biologists: about the origins of life, about the emergence of consciousness by evolution from apparently unconscious matter, and about the origin and rationale of teleonomy in biological processes.(135) As an

evolutionary biologist, Birch reaches a professional conclusion that

> 'the only explanation that makes sense to me is that the stuff of the universe is ordered and has the potential of being further reorganised and that the ordering principle is an aspect of mind'.(136)

He concludes that the ordering principle is all-inclusive, and provides the overall coordination of the ordering without which there would be chaos in the universe. He also argues that the ordering principle is 'democratic' in the sense that it is not rule by coercion and fiat but by the 'persuasion' of responsive entities. This presupposes a degree of 'consciousness' and 'sentience', analogous to those phenomena in human existence and experience; the hypothesis is that they are manifest at all levels of evolutionary development, from humanity to hydrogen atoms. Thus all matter is 'conscious'.(137) But what of the ordering principle? Birch follows Whitehead's extrapolation, and names

> 'the unitary actuality of the universe to which entities respond, with the name God'.(138)

The cosmos is established as a subject of theological discourse, therefore, in virtue of the panpsychism which Birch infers from the scientific interpretation of the cosmos, and the panentheistic interpretation which he adds to it. (Incidentally, this answers no. 4,about God's relationship to the cosmos, except for one aspect which will be dealt with there.)

(2) The cosmos in consummation. Birch barely touches on this theme,since he is more concerned with contemporary historical existence, its associated ethical problems, and the availability of a coherent interpretation of its present reality. Nevertheless, his ideas may be inferred. In Nature and God he argues that 'creation' is the concrete realisation of what is possible in potentia, the lifting of restraints on matter, and accompanied by an increase in 'awareness' of the whole creation; and that it is the unity of nature in God, who is redeemer as well as creator.(139) This existing creation is manifestly incomplete and imperfect, by these criteria, and it seems logical to infer that the Kingdom of God should consist in the completion and consummation of this process; this is the internal logic of such a process, is consistent with Birch's view of participatory evolution, and is similar to the process eschatology expounded by Cobb and Griffin.(140) The implication is that the process will continue

uninterrupted, though erratically because of the freedom of the beings involved, until eventually it reaches the level of beauty, complexity, harmony, and integrity towards which the ordering principle is luring and persuading it.

This becomes a humanised eschatology. Humanity is now the spearhead of evolutionary progress, the species which holds the destiny of the earth in its decision and may bring it to wreck or glory. Human progress advances the cosmos, and progress already achieved grounds hope for further progress in the future. Birch believes

> 'in ' the transforming power of hope',

and therefore

> 'our destiny is in our hands; ... our participation in the future of man can be influential and perhaps decisive [for the future of the cosmos]'.(141)

This is made real in the process of cultural evolution, in which man is a conscious participant in the direction and course of the evolutionary process.(142) The task of this evolution is to exalt society by setting appropriate goals for human development and implementing them by persuasion and good will rather than by coercion. However,

> 'the frightening aspect of our present predicament is that we have no agreement on the goals of mankind, on what people are for, while at the same time science and technology are piling up means that could be used to almost any end';

which means that the immediate goal is to

> 'bring these two concerns together in some creative partnership'.(143)

Thus by setting the right goals and the right ordering of priorities, and by harmonious collaboration of man with man for the good of the whole cosmos, humanity may hasten the coming of the Kingdom, which means the consummation of historical existence and of the ongoing evolutionary process.

(3) The human relationship to the cosmos. Some aspects of the relationship are already clear from no.2, namely that humanity is to take the cosmos forward to God and to his Kingdom. And it goes without saying that the evolutionary biologist also takes seriously the biological contiguity of humanity with the nature from which it has evolved, accommodating that contiguity in his theological discourse. This may also be seen in his use of human experience as a paradigm for the

sentient experience of all nature.

One aspect of the human relationship to the cosmos has not yet been dealt with, and that is the dimension of personal encounter. This is expressed at the MIT conference, and it is new to Birch's presentation. It finds its origin in Gregorios' 'reverent-receptive attitude' to nature.(144) As with Gregorios, the main idea is that the scientific-analytic attitude to nature leads to an objectifying approach which does not accord with the human experience of nature. This experience includes elements of delight, wonder, and mystery, and may include encounter of the ultimate kind: Job 38 - 42 describes such an encounter, according to Birch.(145) His theological perspective, with its unitary conception of humanity, nature, and God, and of all nature as sentient, admits the possibility of such personal encounters with nature; they are social occasions between sentient subjects, a possibility that the mechanistic-scientific view cannot comprehend.

(4) God's relationship to the cosmos. As noted in no. 1, the cosmos is interpreted panentheistically; and it was noted in both nos. 1 and 2 that God is the ordering principle who lures and persuades the cosmos to its consummation.

Associated with the concept of persuasion is Birch's rejection of the 'efficient cause' concept of God. Instead,

> 'God acts in relation to entities which have their own measure of self-determination',

by persuasion and never by coercion.(146) Some events do indeed have greater significance than others, but this is not because God has intervened more in them than in the others:

> 'Significant events are significant because they happen to open up a new realm of possibility heretofore closed. The history of the Jews is rich in such events. The life of Jesus is such an event; it opened up for mankind new possibilities of compassionate understanding, creativity, and human brotherhood'.(147)

The locus of God's relationship to the cosmos becomes the cosmos' response in general and humanity's response in particular. For God can only persuade.

(5) Science and technology. It is the philosophical assumptions which undergird the activities of science and technology that are the object of Birch's questioning and criticism. They have led to a

'factory view' of nature which pits humanity against nature; and they are no longer good science now that physics and biology have moved beyond the epistemologies of Bacon and Descartes.(148) So it is necessary to change the underlying world views of science and technology, to move away from mechanism towards the sort of vitalism advocated by process theology. New developments in science show that a change in world-view is necessary, and so Birch claims that science

> 'has rendered religion, perhaps even revelation, a service'

by showing it the path of truth.(149)

This shows a very positive attitude towards science, which is no surprise in a professional scientist. It is positive in principle, but it is also aware of the deficiencies endemic to some social manifestations of the scientific enterprise. Technology receives a similarly qualified positive evaluation. It is a resource for human development, but only a limited resource:

> 'The problems arising from technology and mismanagement of the environment cannot be solved only by the application of more and better technology. Improved technology can be part of the answer, but to suppose that the problems of technology can themselves be solved purely by technology is self-defeating. Softer technology helps but it will not redeem the world'.(150)

The appropriate corrective is softer technology in combination with a world view which gives value and sentience to non-human existents. The world view is of central importance. There is a connection between the way man thinks of nature and the way he relates to it.(151) Since the future of the cosmos lies at the mercy of humanity, a deficient world view may jeopardise that future severely, as the advent of the ecological crisis shows; but on the other hand, it was noted in no.2. that the combination of the right world view with the right goals for human existence may save the cosmos.

(ii) Discipleship in the technological culture.

The foregoing exposition (and the exposition of Cobb's ecological theology in Chapter Two above), makes it abundantly clear that process theology returns an answer of the 'Christ of Culture' type to Niebuhr's theological question of culture. There is a fundamental agreement between Christian discipleship and the aims of the culture in which it is lived. Christ works in, with, and through society and its institutions, fulfills its hopes and aspirations, and leads it onwards

to its consummation. This is particularly clear from Birch's discussion of 'cultural evolution'. Humanity is at the cutting edge of the world's progress; this progress is ordered persuasively by God, who employs humanity to bring the cosmos to its consummation in himself; humanity does this through its social action, and particularly by developing its scientific and technological enterprises so that they exalt society and benefit the environment. Process theology presents humanity with the right world view which orients human activity so that it corresponds to and may further divine purpose in the cosmos. Thus the title of Birch's 1972 paper is very significant: participatory evolution is the drive of creation.

The spearhead of humanity's progress is its science and technology, which enable man to realise his full potential and the full potential of the cosmos as long as they are rightly directed. They function and coordinate with the responsiveness of nature to bring it to its consummation in God, as long as they respond positively to the creative lure of God. Birch acknowledges that it is not all plain sailing. The ark may not be made watertight in time to save industrial society.(152) The astronomer Fred Hoyle may deny the probability that man will ever gain the upper hand over his fate, and the facts may favour the pessimists; Birch counters, that denying probability is not a proof of impossibility, so there is room for the transforming power of hope.(153) This hope acknowledges that the process of creative advance is inherently ambiguous; and Birch says that the ecological and economic crises

> 'are examples of the ambiguity of creative advance. With each new advance there is a cost. The cost is a cross'.(154)

That is, suffering is an essential ingredient in and accompaniment of creative advance, but hope looks beyond the cost to the new creation it will bring.

However, the overwhelming balance is with humanity in cultural evolution and the science and technology associated with and furthering humanity's propress. The order of the universe

> 'is well established at the level of electrons and atoms, less so at the level of living cells and organisms, least so at the level of human societies. This level is where man's conscious groping may meet the persuasive lure of unrealised possibilities that could make a more complete world and more ordered

> lives. Here is where mankind is challenged to participate consciously in the ongoing creative process'.(155)

Birch's approach therefore represents a synthesis between Christian commitment and technological culture: Christ is the Christ of the technological culture as he is the Christ of culture in general.

Process theology may be analysed and evaluated at many levels; its philosophical assumptions and the coherence of its foundations may be explored, as may its relationship to science, its conscious rejection of traditional theological methods and conclusions, and the adequacy of its ethics; even its claim to be Christian theology may be debated.(156) It is not my task to attempt a sophisticated criticism on any of those grounds, but to evaluate the adequacy of Birch's approach in theological terms, after accepting it at face value. Niebuhr has already evaluated the 'Christ of Culture' response to the theological question of culture, and concluded that it is an inadequate and insufficient response.(157) Perhaps the participants in the C&S programme have sensed some of the inadequacies and deficiencies of this type of theology, which would explain why process theology has not taken on there in spite of its consistent and eloquent advocacy by Birch. Niebuhr was not dealing with process theology specifically, so his evaluation may only serve as a guide for my evaluation of Birch's position in the next subsection.

(iii) Evaluation.

Process theology claims to have it right when everyone else has it wrong. Birch and Cobb state that Derr's Ecology and Human Liberation typifies

> 'the dominant view of nature in Western Christendom, [which] is gravely deficient both as an interpretation of biblical views of the creation and as a basis for an adequate contemporary ethics of ecology'.(158)

But then Birch, after outlining the process stance at Zurich in 1977, asked himself:

> 'If this approach is so illuminating and motivating for me, why has it not caught on in the world of science and of theology and in the world of just ordinary people who want to find meaning in their existence?' (159)

One who has advocated this approach as patiently and consistently as Birch, has earned the right to ask. And his approach has theological and ethical advantages to strengthen its appeal.

Birch's process theology is congruent with the human capability to organise and bring order to nature through science and technology, and it satisfies the need for a unified and coherent interpretation of experience and reality.

By placing science and technology firmly within the context of humanity's cultural evolution, Birch gives them potential purpose and direction which may prove beneficial to the whole cosmos. The experience of science and technology over the centuries has shown that they do indeed have the capacity to benefit mankind and nature, for example by eradicating diseases in animal and man, by the preservation of species, and by the control of environmental variables such as the availability of food supplies.(160) The ecological crisis shows that humanity's touch is far from sure, but his technological history shows that the potential is there. So Birch directs his efforts towards developing the potential that has already been shown to exist; in this way, it answers the crisis with hope where some others answer with despair. In this way, too, he accepts and acknowledges the human capability to bring order to and to organise nature, and gives it a positive orientation.

He is also attempting to provide a coherent unified interpretation of experience and reality. Science and faith are brought together into one harmonious scheme, thus resolving potential conflicts between what scientists may claim on the basis of their investigations and analyses, and what theologians may claim on the basis of revelation. Birch's paper at MIT appeals to the conference desire for unity and coherence, for peace between science and faith:

> 'In [my] view knowledge is not divided between science and revelation. All truth is inter-related so we must concern ourselves with everything. Continuities between the different ways of knowing lead to continuities in what is known, as for example between nature and God, the living and the non-living and the human and non-human life'.(161)

This is why Birch believes that science and technology may work together for the good of which humanity senses they are capable.

The human experience of nature is included in Birch's interpretation of reality. Man experiences nature in emotional terms — awe, terror, delight, joy — and as one of the vehicles of God's revelation to man, as well as his experience of nature in terms of manipulation, control, and investigative analysis. Birch takes the emotional experience into account as a social relationship between sentient beings, and the revelation which may occur in the personal encounter with nature is seen as part of God's persuasion and lure addressed to human sentience.

Humanity also experiences the ambiguity of reality and the tragedy which enters life. Birch addresses this metaphysically and theologically. Accidents do happen, tragedies do occur, they are a source of disorder in the existence of the cosmos. But the existence of an ordering principle or agent (God)

> 'does not mean there is no disorder. On the contrary, there is no possibility of evolution without disordering by agencies such as mutation and recombination of genes in sexual reproduction'.(162)

The metaphysical answer couched in biological terms may also be expressed theologically: The cross is the cost of each new creative advance.

> 'The symbol of the fall is always with us. It identifies the occurrence of a new level of order and freedom bought at the price of suffering. ... The cross pattern is woven deeply into the fabric of nature.' (163)

And the contemporary experience of ecological and economic crisis is part of the ambiguity of creative advance whose cost is borne at the cross. (164)

This means that Birch is able to provide a holistic theological perspective on and interpretation of the reality and experience of contemporary man in the technological culture. This is not surprising, since process theology makes a deliberate attempt to start with the experience of the real world and the knowledge about it which scientists may provide.(165)

Process theology therefore has a component of metascience, and their panpsychism belongs to this component. It is one way of answering the question as to how consciousness may have emerged from matter in the process of evolution: it answers that all matter is conscious to some degree. Theologically, it has two advantages. It establishes the possibility of human relationship to the non-human world which goes beyond the subject-object relationship of science to incorporate the dimension of personal (subject-subject) encounter. And it makes 'life' the central concept in environmental ethics and humanity's dealing with other species. These

provide a sound theological and ethical orientation for life in the technological culture. Some recent biblical scholarship has argued that Scripture testifies to the theological importance of the gift of life, as the basic experience which gives man his bearings in his perception of the natural world and environment; the miracle of life, the withdrawal of life, provision of space and food and time-span for life, are ultimately beyond the disposal of the living thing and are experienced and recognised as gifts of the Creator. This paves the way for an ethic of shared creatureliness and partnership which seeks to conserve and enhance life as much as it is in man's power to do so.(166) Birch's panpsychism points instinctively in the same direction as do this strand of biblical theology and, of course, the professional concern of the biologist.

There are several things to be said against Birch's approach, nevertheless. It exalts reason at the expense of revelation. It is human reason which has investigated and analysed the structure and processes of the world, providing the scientific interpretation on which Whitehead's metaphysic and Birch's metascience are based. It is evident that process theology is a theological adaptation of revelation so that it fits the mould constructed by scientific reason. Thus Christ becomes the symbol and epitome of life in response to the creative lure of God, whose life has opened up new possibilities of compassionate understanding creativity, and human brotherhood.(167) The prophetic 'Thus saith the Lord' has been considerably muted. Birch spends little time in discussing the cross, except to interpret it as part of the built-in cost of creative advance and the means by which God's creative love makes up for the deficiencies in the cosmic response.(168) The primacy of reason in the process theology approach also makes it difficult for it to accommodate the biblical understanding of the inadequacy of human wisdom: the wisdom of this world is folly with God, who knows that the thoughts of the wise are futile and who catches the wise in their craftiness; and St. Paul emphasises that it is the cross which shows those limitations on human reason (1 Corinithians 1 - 3). Birch does attempt to deal with the problem that revelation poses to ratiocination. Job 38 - 42 presents

> 'an encounter of the ultimate kind ... Confession of incompetence, according to the book of Job, is the beginning of wisdom'.(169)

This statement was made at MIT, in the section of his paper in which he is adapting Gregorios' reverent-receptive attitude to nature to his own process theology approach. It represents a new direction in Birch's thinking, as he seeks to come to grips with the implications of Job's encounter with God in the light of his own presuppositions about the sufficiency of human reason. The main implication of his expositions before MIT was that human reason needed no supplement, that it could direct human life and even the life of the cosmos towards its fulfillment in God.

Because his approach exalts reason, Birch's process theology has problems dealing with eschatology. It can only see the element of continuity between historical existence and the Kingdom of God. It cannot contemplate the existence of discontinuity (except discontinuities of the type which occur in the evolutionary process). Eschatological existence cannot be speculatively described by extrapolation from the contemporary insights available to human reason. What eye has not seen, nor ear heard, nor the heart of man conceived, is what God has prepared for those who love him (1 Corinthians 2:9, quoting Isaiah 64:4). Birch cannot incorporate the fullness of the biblical testimony about the last days, which includes an emphasis on the discontinuity alongside the continuity, and the transformation of, and judgment by God upon, all that exists. He fails here because it is not amenable to investigation and rational contemplation by man in the light of his scientifically-based understanding of the world.

Birch's exaltation of reason is accompanied by a great confidence and optimism about the power of the human spirit. With Cobb, Birch believes that humanity can improve the world and save the cosmos as long as it chooses the right social goals and directs its scientific and technological enterprises toward the achievement of those goals and the general enhancement of life in the cosmos. But this approach shatters on the grim rock of reality. The task of setting social goals and then implementing them requires more than good will and persuasion for its success; the continual thrust of the WCC discussions relating to international economic structures, development, and the need for a just, participatory, and sustainable society, points to the inescapable and unpleasant fact that the human species is far from ready to coordinate its activities around cosmic goals. The basis of the optimism shown by Birch and Cobb is their evaluation of reason; and reason cannot deal with human sin in strictly logical-analytic-empirical terms.

For sin is a persistent, pervasive, and disruptive force to be reckoned with in social ethics, and process theology has no leverage here at all.

I have already indicated how the process theology stance sees Jesus himself and interprets his life. Niebuhr closes his evaluation of the 'Christ of Culture' response with a brief discussion of the Trinitarian problem: if Jesus is so interpreted (as the man of culture), what is his relationship to nature and to the power which produces and governs the cosmos?(170) Birch's process theology, like the Christ of Culture response, cannot answer this question in a way acceptable to the Christian tradition. Process theology and Birch's position subjugate redemption and eschatology to creation, so Jesus is seen in human and cultural terms which focus on his role in the world's ongoing creative process, and is made remote from the Father. The question is, Is the God who is the ordering principle of the cosmos also the God and Father of our Lord Jesus Christ? Or, to put it another way, Is the God whose character is inferred by scientific reason to be the ordering principle of the cosmos also the God known by revelation as the triune God? There is no justification for identifying the two, nor can there be. Which means that orienting technological culture and its progress around the perceived goals of the ordering principle need not necessarily represent obedience and fidelity to the Christian God.

My evaluation of Birch's process theology is therefore very similar in style to my evaluation of the emancipatory approach. Its advantages are qualified so stringently by its disadvantages that there is grave cause for doubt about the wisdom of adopting such a position, and it is necessary to ask whether an alternative approach may maintain and strengthen the advantages without falling into the same pitfalls.(171)

When Birch and Cobb introduced their joint paper for the Bucharest Conference, they stated that their process theology stance

> 'comes nearer to the tradition of Eastern Christendom in its valuation of nature than to the dominant thought of Western Christianity'.(172)

There is a noticeable sympathy between the process stance of Charles Birch and the Eastern view of Paulos Gregorios. In the two preceding sections, I have shown that the dominant thought of Western Christendom (as it has been represented in the C&S discussions) has been of mixed value as theology, without considering its ethical strengths and weaknesses in much detail. I have argued in this section that process theology does little better. What, then, of the Eastern tradition? That is the subject of the next section.

5. The Orthodox approach of Paulos Gregorios.

Paulos Gregorios has had a long association with the C&S programme, and has contributed extensively to its discussions.(173) The Orthodox participation in the programme has been relatively small, with the notable exception of the 1974 Bucharest Conference which was a 'home game' for the Orthodox. Gregorios' personal contribution has been maintained from the sixties right up to the 1979 MIT conference at which he was Moderator, Bible Study leader, and contributor of a paper on science-faith dialogue.(174) My survey in Chapter Three shows that he is the logical person to choose as a representative of the Orthodox contribution to the C&S debate.

There is a codicil. Gregorios represents the Syrian Orthodox Church, which is a non-Chalcedonian (Monophysite) church and not 'Orthodox' in the sense that it is a full member of the communion of Eastern Orthodox churches; there is a fraternal bond which stops short of full recognition of the Syrians by the Orthodox.(175) Gregorios is therefore Orthodox in a qualified and restricted sense, and cannot be regarded as entirely representative of Eastern Orthodoxy. Nevertheless, his theology is more closely related to the East than to the West,and is informed by the Eastern heritage. His own tradition rejects the work of Maximus the Confessor, for example, whereas Eastern Orthodoxy accepts it and values it more highly than that of Gregory of Nyssa. Gregorios relies heavily on Gregory of Nyssa for his discussion of the human relationship to the cosmos, because he is

> 'the only philosophical theologian of the undivided Christian church who has dealt with these themes in any profound way and who is acceptable to the authentic tradition'

whereas Origen, Augustine of Hippo, and Maximus the Confessor are not so acceptable.(176). But for the sake of the fraternal bond with the Orthodox, and for the sake of interpreting the whole Eastern tradition in the ecumenical context, Gregorios devotes a chapter of his book to Maximus and to the development of Eastern thought. It is reasonable, therefore, to regard Gregorios' approach as 'Orthodox' without further reference to his membership of the Syrian Orthodox Church and the qualification that implies. But, given that the Eastern Orthodox tradition values Maximus more highly than Gregory of Nyssa, it is now clear why Gregorios has based his ecological theology on Gregory rather

than on Maximus, and that his choice will be reflected in the ecological theology he propounds.

The main source for my exposition of Gregorios' theology is his book The Human Presence. An Orthodox View of nature.(177) It was written in response to Derr's Ecology and Human Liberation, as an Orthodox counter-balance to the emancipatory position adopted by Derr. I will be supplementing this by reference to two other works: Gregorios' paper in the Humanum symposium on Technology and Social Justice, titled 'This World and the Other'; and his paper to the 1977 Zurich theological consultation, titled 'An Eastern Orthodox Perspective of Nature, Man and God'.(178) Together, these three works provide a representative sample of Gregorios' ecological theology.

The examination of his position will follow the same general outline and procedure as the examinations of the other positions: exposition, response to the theological question of the technological culture, and evaluation. Since Gregorios' book was a response to Derr's,it will be appropriate to refer to Derr's position; and since Gregorios shows a noticeable sympathy with process theology (but without committing himself to that stance), it will also be appropriate to refer to Birch's work.(179) These references will be made in the exposition, to which I now turn.

(i) Exposition.

The exposition of Gregorios' contribution will be undertaken with the aid of the five questions listed at the beginning of Section 1.

(1) The Cosmos. Gregorios argues that the idea of 'nature' as an impersonal entity confronting man is an Indo-Hellenic concept. It came to prominence again in the Western tradition during its post-Renaissance secularist phase; and generally, when society loses its sense of direct dependence on and derivation from God, that sort of concept of 'nature' comes to prominence again.(180) But this is not the biblical concept of nature. In the Genesis sagas, the writers had no notion of nature as something 'out there' to be de-sacralised and then subjugated.(181) Instead, God, and humanity and nature represented a differentiated unity. For

> 'God is not a reality with precise physical boundaries; man cannot create a space-interval between himself and God. God is the reality which sustains both man and nature, and it is through man himself and through nature that God presents himself to man. In this sense, it is foolish to see God and nature as alternative poles

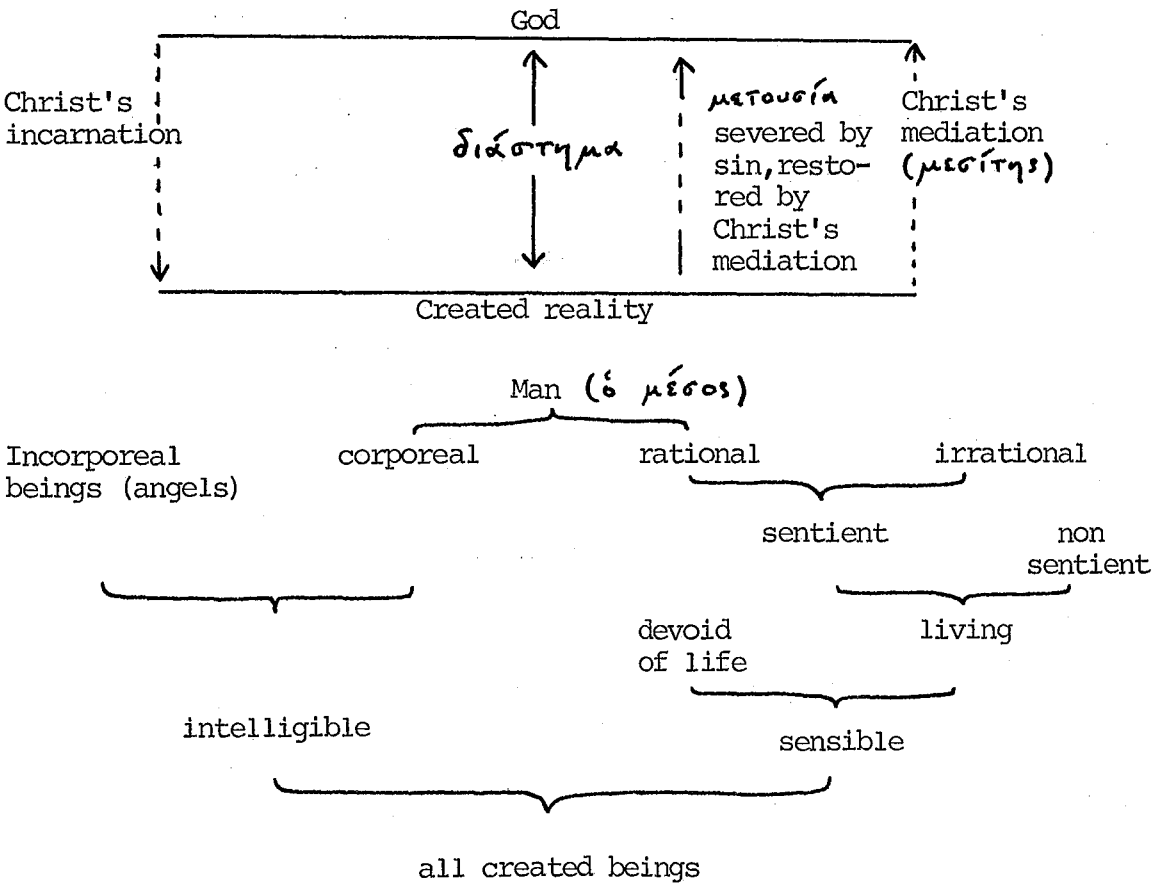
> placed so that if man turns towards one he must turn his back on the other.' (182)

Ethically, this leads Gregorios to question Derr's interpretation of the stewardship ethic, since it allows the separation of nature from humanity, the temptation to see nature as

> 'some kind of property, owned not by us, of course, but by God, given into our hands for efficient and productive use. ... But the question goes much deeper than the good management of something outside ourselves'. (183)

The 'question' is that of humanity's relationship to nature and to God. The theological answer is that the cosmos can only be considered in its relationship to man. Here Gregorios relies on the work of Gregory of Nyssa.

Gregorios describes the cosmos and its relationship to God on the basis of Gregory's ontology, which may be summarised diagramatically, thus:



Man is the crown of the creation, and the intermediary (mesos) between the intellectual and the sensible worlds, since he participates in both. The structure is basically hierarchical, with man at the 'top' and the 'closest' part of the creation to its creator. Gregory of Nyssa's ontological hierarchy is a synthesis and Christian transposition of different currents

of thought, including the Stoic conception of the harmony of the universe, the Platonic division between sensible and intelligible, and the fourth-century Athanasian orthodoxy which separated creator from creation by the diastēma in order to guard against Arianism and emanationism.(184)

This ontology makes it clear why the cosmos can only be discussed theologically in its relationship to man. Its relationship to God is mediated through man (see no.3 below); and humanity, the mesos, is the keystone which holds together the hierarchy of created beings. Gregorios makes the latter point in a different way:

> 'Humanity and universe are interlocked parts of a single system. That system ... is like humanity's body, not like an object outside humanity'.(185)

(2) The cosmos in consummation. Because the cosmos is ontologically bound up with humanity and therefore with Christ, its consummation is also bound up with humanity through Christ's resurrection. Matter and nature participate in the redemption, because

> 'it was of the earth that Christ's body was constituted, the body which was transfigured on Mount Tabor, crucified on the tree, and came out through the mouth of the tomb, the body in which he appeared to his disciples, in which he ascended to heaven';

and this shows that

> 'God includes the whole universe in his creation as well as in redemption in Christ'.(186)

Matter therefore has an eschatological future. The reference to the Transfiguration shows that the eschatological promise for the whole creation, implied by the resurrection of the man Jesus, may be realised in contemporary historical existence, if only fleetingly. In this respect, Gregorios' approach is similar to the theology of hope. But he develops his position in a sacramental way, based on the eucharist; in the eucharistic act, all dualities between creator and creation, time and eternity, subject and object, are transcended. The language is liturgical, and refers to humanity's 'priesthood', to the eucharistic anaphora in which man offers his labours in the cosmos to God, and to God's transfiguration of the cosmos in response.(187) Thus Gregorios' approach focusses on the eschatological importance of the resurrection for the future of the cosmos, but interprets it in eucharistic-sacramental terms.

(3) The human relationship to the cosmos. It is evident from the exposition so far that this provides the key to Gregorios' position.

The human relationship to the cosmos is determined by humanity's place in the ontological hierarchy of Gregory of Nyssa, in which humanity is the mesos between the intelligible and the sensible. Gegorios sees man as

> 'the citizen of two worlds ... with a special vocation to spread the grace of God through the whole of creation, animate and inanimate. ... He is akin to both God and matter, a member of both families, made to enjoy both the divine and the terrestrial. In him and through him, matter too is to be redeemed. That is why Christ became man and assumed a material body. Man in Christ is the saviour of the world: he restores it to God so that it may truly be filled with his glory'.(188)

The explication of this passage will serve to describe most of the main features of Gregorios' approach with regard to man's relationship to the cosmos.

The vocation to spread the grace of God through the whole creation derives from humanity's ontological position as the mesos, and from the concept of participation (metousia) in Gregory of Nyssa.(188a) Gregorios quotes Nyssa, to the effect that man recapitulates and re-presents the whole universe, that man is nevertheless not a microcosm, and that the cosmos responds consciously to its creator through man.(189) Humanity participates in the divine perfections, goodness, and life, because man is the intermediary between God and his creation; in this way, the cosmos enjoys a mediate participation through man.(190)

Humanity's participation in the divine, and the mediate participation enjoyed by the cosmos through man, has been disrupted by the Fall. (191) Christ has crossed the diastēma which divides the creation from its creator, and as the mediator between God and man has restored the human participation in the divine; consequently, the whole creation may again participate mediately through man in God. Thus 'man in Christ is the saviour of the world'.(192)

Gregory's ontology and his concept of participation depend on a dynamic interpretation of the imago Dei text, as follows. Adam's sin had sullied and obscured the image of God in man, but man may grow in virtue and regain the perfection of the image through participation in Christ. In this way, Christ's work may be continued on earth in the lives of believers, so that it is humanity united to Christ and in

cooperation with him which is 'the saviour of the world'. Humanity united to Christ and participating in God through him is potentially unlimited in its ability to create good for man and for the cosmos and to achieve God's purposes for both.(193) This line of thought has implications for his assessment of science and technology, which will be discussed in no.5. below.

This dynamic interpretation of the imago Dei explains Gregorios' emphasis on humanity's responsibility to acquire the dominion over the cosmos by its own effort.(194) This is stated in organic terms, made possible because man is the mesos between the intelligible and the sensible and because the individual is a body-soul unity:

> 'just as the soul in man cannot be located in any part of the body, but pervades the whole of it, so man ... is to pervade the whole universe, to regulate it, to "hominise" it, as Teilhard put it'.(195)

The central idea is that man is to make himself the 'soul' of the cosmos by means of his science and technology. This is how man may restore the world to God and make it free to be filled with God's glory, as stated in the conclusion of my thematic quotation above. It will only be achieved, however, if science and technology are subordinated to and integrated with the quest for justice, freedom, peace, and creative goodness, in participation in Christ.(196)

That concludes my explication of the thematic passage in The Human Presence about humanity's relationship to the cosmos, which covers all but one of the main features of his approach. The liturgical aspect remains. Gregorios holds that human dominion must be held in tension with a reverent-receptive attitude towards nature. This has its roots in the tradition of biblical Wisdom and in the human experience of nature as a source of awe and wonder and terror and delight, and as a vehicle of God's revelation to man.(197) The reverent-receptive attitude provides a 'necessary complement' to the contemporary scientific-technological attitude of analysis and manipulation; it is the attitude of

> 'being open to fundamental reality as it manifests itself to us through visible, audible, sensible realities in the creation'.(198)

This is part of Gregorios' sacramental-eucharistic view of nature. But there are two sides to this liturgical relationship of humanity, nature and God. Man in Christ is the mesitēs between the creation and the creator, and offers the creation to God, as its priest. This qualifies

the titanism which could be drawn from the other aspects of the human relationship to the cosmos already described, by supplying the same sort of restraint that the stewardship ethic provided in the emancipatory approach. Thus Gregorios states that

> 'our mastery of the universe is like the mastery of our bodies; it is not that we may have it for our own use, but that we may give nature, as our extended body, into the hands of the loving God in the great mystery of the eucharistic self-offering. ... a secular technology of mastery of nature for oneself is the "original" sin, of refusing our mediatory position between God and the universe, dethroning God, and claiming mastery for the sake of indulging our own cupidity, avarice and greed. The mastery of nature must be held within the mystery of worship. Otherwise we lose both mastery and mystery'.(199)

(4) God's relationship to the cosmos. The main features of God's relationship to the cosmos have already been adduced; it is clear that Gregorios' view in this matter is dominated and shaped by Gregory of Nyssa's ontology.

(5) Science and Technology. This has been dealt with, in part, in no.3 above. It was stated there that the pursuit of science and technology, if subordinated to and integrated with the quest for justice, freedom, peace, and creative goodness, could enable man to fulfill his vocation in the cosmos. It was also stated there that the technological mastery of nature must be held within the mystery of worship. These are two of the three main features of Gregorios' position with regard to science and technology; one remains to be discussed here, namely Gregorios' use of Gregory of Nyssa's concept of the epinoia which makes human science and technology possible.

Epinoia is the power of conception and creativity, which coordinates understanding, language, and action.(199a) As a result of Adam's sin, the human epinoia is capable of error, false judgment, and self-delusion, so it is incapable of knowing the truth in its fullness. This affects humanity's relationship to its environment, because the world of experience is shaped by the admixture of error in all human enterprise arising from the flawed epinoia. But the damage is not irreparable, just as the sullying and obscuring of the image of God in man is not irreparable.

> 'Only as the human person is progressively liberated from the evil does his epinoia begin to function as it should. ... Only through the transformation of his being can the human person arrive at error-free understanding, language, and action.'(200)

In fact,

> 'the mind's proper functioning is dependent on man becoming free, just, righteous, fully engaged in creating the good'.(201)

Therefore, as the human family grows in virtue, the scientific and technological enterprises become more accurate, more powerful and penetrating, and more capable of humanising the cosmos. This happens in a way which benefits the cosmos without threatening or destroying it, because it derives from the collective participation in goodness and is part of the human fulfillment of God's purposes in his creation. Any abuse of this scientific and technological progress will involve a diminution in epinoetic power, a corresponding setback to the progress achieved, and a proportional frustration of science and technology. This concept of the epinoia (and the liturgical interpretation of the human relationship to the cosmos), serves to restrain any technological wantonness. Conversely, it has the positive function of encouraging growth in virtue so that humanity may live in that peaceful co-existence with nature that God intends for the whole of his creation — when the lion shall lie down with the lamb, and there shall be no more death or mourning nor crying nor pain (Isaiah 11:1 - 9, Revelation 21:1 - 4). So the epinoia encourages humanity to live as God intends it to live in the cosmos, and enables it to fulfill its vocation therein.

This completes my exposition of Gregorios' theology, and I shall now compare it very briefly with Derr's approach which provoked Gregorios to set forth his views. Gregorios explicitly rejects the idea of nature as something ontologically separate from man, to be subjugated by man, and which may be subjugated by science and technology because it has been desacralised and is therefore free to human activity. And he rejects the emancipatory distinction between man as the thinking subject who manipulates nature as an object.(202) Derr approaches the ecological question exegetically, exploring the implications of Genesis 1:26 - 28, and Gregorios approaches the question by exploring Gregory of Nyssa's ontology. There are similarities between Derr and Gregorios nevertheless. Both see the human concern in the cosmos as paramount. In Gregorios' case, this is because humanity is the key to the cosmos' relationship to its creator. He expresses this forcefully in the Humanum symposium. Someone may ask, he says, whether it is the universe which is the proper object of scientific, technological, and economic development? No:

> 'It seems necessary to shout at the top of one's voice that the object of development is not the universe, but man ... If we want to develop the world, it is not for the world's sake, but for the sake of man, and the full manifestation of his being, which is after all the image of God and redounds to the glory of God.'(203)

Both Gregorios and the emancipatory position see the scientific and technological enterprises as the means of realising God's purposes in the cosmos; Gregorios uses them to 'create the good', to allow the whole creation to participate mediately through man in God, whereas the emancipists see them as the means of liberating nature from its bondage to the powers of chaos and subjugating nature to man as God had intended it to be. There are other similarities between Derr and Gregorios which will appear in the next subsection.

Gregorios shows great sympathy for process theology. This stems from his theology of participation in God's energeia as the constitutive principle of all existence. The energeia is dynamic and creative, by definition, and the cosmos must be viewed

> 'as a dynamic movement of God's will and energy',

which is the source of its value and the justification for environmental ethics.(204) It is a short step from this view to panpsychism, with the help of evolutionary biology. Thus Gregorios states that

> 'as the technological crisis deepens, we will need more and more vitalist interpretations of the universe',

and he mentions Bergson, Whitehead, and Teilhard de Chardin with approval.(205) But Gregorios is not a process theologian in Orthodox guise. The ontology from which he derives his position implies some statements that have a 'process' flavour to them; but it is a fourth-century ontology which lies within the orthodox Christian tradition, is faithful to it, and preserves some of its necessary truths. Process theology, on the other hand, is built on an ontology constructed on meta-scientific grounds and adapted precariously for Christian thought.(206) Gregorios is able to interpret sin, incarnation, resurrection, and the human relationship to the cosmos generally, within the parameters of the biblical testimony and on the basis of Nyssa's ontology. For Gregorios, for example, the resurrection implies that matter has an eschatological future. For process theology, on the other hand, the eschatological future of matter is ontologically determined by the ongoing process as the culmination of God's luring and creative love;

its future is built into the system, and is metaphysically guaranteed independently of the resurrection of Jesus of Nazareth. For Gregorios, the eschaton involves radical discontinuity between this existence and the next, and the refining judgment upon all historical existence; the process theologians emphasise the continuity between this existence and the next, and see the discontinuity as no different in kind or degree from the type of discontinuity known in the evolutionary process and inherent in genetic mutation. The differences between Gregorios' approach and that of Birch and the process stance generally will become clearer in the subsection which follows:

(ii) Discipleship in the technological culture.

It is evident from the exposition above that Gregorios' Orthodox theology represents a median answer to the theological question of discipleship in the technological culture. It shares the tenets which the church of the centre maintains: humanity is capable of science and technology, and the human vocation includes the development of this capacity within the context of God's good creation; the reality of human sin is acknowledged, and its effects are shown to pervade the whole creation in a negative and destructive way which can only be remedied by God; which means that Gregorios' position also gives priority to Christ's work in redemption and the necessity for works of Christian obedience, for without them the creation cannot participate in God, the epinoetic faculty atrophies in man, and the death of the cosmos ensues.

Gregorios' attitude to science and technology generally is far too optimistic for the ambivalent (Christ and the technological culture in paradox) approach. So either he represents a sympathetic or a conversionist response, or requires a separate classification of his own. As it happens, it is not necessary to create a new category to describe Gregorios' type of theology.

His approach shows an affinity with the conversionists who see in Jesus the new act of God in human history, redeeming the failures of human sin and creating the good in the midst of sin's destructive and negative effects in the technological culture. Like the C&S theology of hope, Gregorios adds an eschatological dimension: Christ's life, death, and resurrection supply the paradigm by which contemporary existence and action may be oriented and assessed. Thus

> 'the new metahistorical existence, the new creation into which the whole of humanity has to be reborn through death and resurrection, has already been inaugurated through Christ's death, resurrection and ascension. He has assumed all humankind into himself, and exalted it to the right hand of God'.(207)

The human vocation is already realised in Christ, and humanity is to labour in history for its fulfillment in metahistory; as Christ has united the divine and the human, creator and creation, transcendent and immanent, spiritual and scientific-technological, and thus enabled the cosmos to participate mediately through him in God, so now humanity's task is to labour for that union and participation (on behalf of the cosmos) with all the spiritual and scientific-technological means available to it.(208) In fact, in Gregorios' theology, it is hard to know where history ends and eschatology begins, or where the boundary lies between humanity as the biological species of contemporary historical existence and as the theological-eschatological humanity united in Christ. I shall discuss this in the next subsection. It is clear, however, that the eschatological understanding of the human vocation in Christ is the determinant for present action. This makes it seem that Gregorios may represent a conversionist approach.

Gregorios' eschatological orientation and expression is derived from the juxtaposition of the biblical teaching about the resurrection and the presence of the eschatological Kingdom in contemporary history, on the one hand, with Gregory of Nyssa's ontological hierarchy within the created realm and the metousia relationship between the creation and God on the other. It is only in the eschatological Kingdom that humanity in Christ will be able perfectly to fulfill its role in the creation as mesos between the worlds of the intelligible and the sensible, and as mesitēs between God and his creation. The human vocation is an eschatological vocation, connected with the perfect functioning of the hierarchy of created beings, with each level participating in God through intervening levels. Gregorios' exposition makes it clear that in the partnership between Gregory's ontology and eschatological faith, the ontology is the major partner.(209) Human sin disrupted the proper functioning of the ontological hierarchy and its participation in God; this has been restored in Christ and may be realised proleptically in human history; but its full restoration and the proper functioning of the hierarchy have been deferred to the eschatological Kingdom when, if Adam's sin had not intervened, it would have been achieved in history.(210)

The discontinuity between this world and the next, namely the last judgment (1 Corinthians 3:10ff) corresponds to the ontological disruption engendered by Adam's sin. This means that the eschatology represents only an adjustment to the situation which arose from the effects of sin in the hierarchy, and the real determinant of Gregorios' theology is Gregory's ontology. This also means that his answer to the theological question of the technological culture may be found in the hierarchy rather than in considerations of eschatology.

The proper functioning of the hierarchy is therefore tied to the human vocation in the cosmos,

> 'to spread the grace of God through the whole of creation'

and to be

> 'the priest of creation, as the mediator through whom God manifests himself to creation and redeems it'.(211)

This redemption includes the salvific work of science and technology, which create the good for the universe by subjugating it to the will of humanity in Christ. This hinges on the dynamic interpretation of the imago Dei tradition in terms of theōsis, the practice of virtue by human effort surrendered to the will of God and culminating in the full development of man:

> 'The spirit of man must become like God, who is love. The mind of man must become like God, who is wisdom. The hands of man must become like God's, full of power',

and so

> 'we must see science (mind) and technology (hands and their extension) as part of the way in which theōsis itself takes place'.(212)

Even in the imperfection and sinfulness of historical existence, science and technology are the means by which humanity may mediate the grace of God to his creation, to the human species and to the non-human world as well. Humanity is called to engage in, develop,and intensify the technological culture, as part of its obedience to God; and the technological culture is the means, through God's prevenient grace, to the world's salvation.(213)

Gregorios' attitude to the technological culture may be summarised by saying that the proper functioning of the ontological hierarchy was disrupted by human sin but now, through human theōsis and the enterprises of science and technology, it may be restored by humanity in Christ. It is clear that he returns a sympathetic answer to the question of the technological culture, of the type described in section 1 above and already exemplified by the emancipatory approach (section 2). There are significant differences between Gregorios and the emancipists: the theology of history takes man away from nature, whereas Gregory's ontology depends on his relationship to nature; Gregorios' position is ontologically-based, whereas Berkhof and Derr look to an exegesis of the 'dominion' tradition which follows Bacon and Descartes in seeing the scientific and technological enterprises as the means of achieving dominion. But Gregorios nevertheless agrees with Derr in his basic attitude to the technological culture, even though Derr's book provoked Gregorios to write a corrective.

The emancipatory position has been shown to be less than useful in meeting the theological needs of the contemporary situation of the environmental crisis, primarily because it is not good theology and is no longer viable for an ecological theology which intends to stay close to the biblical testimony about the human place in and influence on the cosmos. The next subsection investigates Gregorios' approach for its theological adequacy.

(iii) Evaluation.

Since Gregorios and the emancipatory approach both represent the sympathetic type of response to the technological culture, it is reasonable to expect that there will be a measure of similarity between their advantages and disadvantages. This happens to be the case with the advantages, but is not so with the disadvantages which are more closely associated with their respective articulations of their positions.

In section 2, I listed four theological advantages to the emancipatory position: first, it makes sense of humanity's proven ability to manipulate and control nature to some degree; second, the interpretation of humanity's vocation in the cosmos (to be the technological agent of God's will for the whole of the cosmos) is accompanied and balanced by the acknowledgement of humanity's biological contiguity with nature; third, it is able to justify Christian involvement in the scientific and technical enterprises; and fourth, it is able to acknowledge with gratitude

the achievements of the technological culture and the great benefits it has brought to human existence. Gregorios' approach shares these advantages, as they are expressed within the parameters and language of Gregory of Nyssa's ontology. It is therefore unnecessary to expand upon these advantages in Gregorios' case, since they are obtained mutatis mutandi from the list of merits of the emancipatory approach.

Gregorios' theology has two further advantages, derived from his articulation of his position and which serve to strengthen it considerably. He is able to harmonise his theological position with the contemporary evolutionary understanding of man, but without jeopardising or compromising his unique status in the natural order; and Gregory of Nyssa's ontology provides a sound foundation which is compatible with the understanding of the world's structures and processes, yet preserves those necessary truths of Christian theology which Birch's articulation of the process stance was unable to preserve.

Gregorios is keen to point out that his approach is eminently compatible with the perspective of evolutionary biology:

> 'the tradition accepted an elementary form of the doctrine of evolution thirteen centuries before Charles Darwin. Gregory of Nyssa in the fourth century held the view that the same force of creation, operating in inorganic matter, shaped the plant world or vegetative sphere of life, the animal world or the bio-sphere, and the human world. He went further to say that ... the animal and the vegetative elements exist and operate in the human.' (214)

Such an evolutionary conception is made possible by Gregory's view of the dynamic energeia of God which creates and constitutes all existence. The creative energy of God appears (to Gregory) to have taken a gradually ascending path, with humanity emerging at the last stage. The emergence of man represented

> 'a kind of full flowering and fruit bearing of the plant of the cosmos. The universe reveals its full nature only when it brings forth man; ... and it is on the plant of the universe that the human fruit subsists'.(215)

This metaphor allows, in a very clever way, for the simultaneous acknowledgement of humanity's biological contiguity with the nature from which it has evolved, and of humanity's unique place and status in the cosmos. Gregory's rudimentary view of evolution was speculative and derived from

the hierarchical structure of his ontology rather than from scientific deduction and experiment and observation; but he was close to the right track as far as the modern view is concerned.(216)

Humanity's place at the 'top' of the hierarchy assures his uniqueness within the order of created beings, and corresponds to his position as the mesos between the two worlds of the intelligible and the sensible realities. The fact that Gregorios' view may be harmonised with the evolutionary understanding of man refers only to the manifestations of God's creative energy in the 'sensible' side of the hierarchy. Only a part of the hierarchy is involved in the harmony of Gregorios' approach with evolutionary theory. But the whole of the hierarchy is very versatile and serviceable in Christian theology.

As already noted, it uses the Athanasian concept of the diastēma between God and his creation to safeguard against Arianism and emanationism. It also shows why the Word took human flesh, because the whole of creation is connected through humanity to God, and so the whole realm of the created reality may also be redeemed through the human species. Gregory's concept of participation connects the whole of the creation to God through man, allows for the severing and disruption of this connection through Adam's sin, and its reinstatement in redemption through Christ who is the mediator between man and God. Thus it also safeguards the theological correspondence between creation and redemption — all creation is included in the fruits of the redemption. The advantages of this ontology may be seen by comparison with Birch's articulation of Whitehead's approach, which I have criticised in the preceding section for exalting human reason to such an extent that the Christian truths of the incarnation, revelation, and eschatology, could only be fitted into the schema by awkward and artificial adaptations.

Where does the difference lie, between Whitehead and Gregory of Nyssa? Both ontologies have hierarchical structures. But two differences become evident immediately. Gregory of Nyssa posits a diastēma between God and his creation, which can only be crossed at the incarnation in which God becomes incarnate in man. There is no diastēma for Birch, who follows Whitehead's panentheistic view of incarnation and abolishes the diastēma thereby.(217) In Gregory of Nyssa's terms, Whitehead and Birch have confused the creative energeia of God with the incarnation of the Son, the creation with the redemption, the continual constitution and preservation of the cosmos with the single

trajectory in history of Jesus' life. The second difference is that Whitehead's ontology has been constructed primarily as a metascience, a metaphysical construct and interpretation of reality founded on the best current scientific information about that reality; hence Birch's high esteem for reason and science. But Gregory of Nyssa's approach represents a deliberate and purposeful adaptation of the scientific and philosophical evidence of his day, to be used for the orthodox articulation and defense of the Christian faith. That is, the theological considerations were of primary importance when the ontological structure (neo-Platonism) was adapted to the theological task. Hence the need for the concept of the diastēma, for example.(218) Thus Gregory's ontology values revelation more highly than reason, whereas Birch and Whitehead reverse the valuation.

In basing his theological approach upon the work of Gregory of Nyssa, Gregorios has chosen a stout stick to lean upon. The other sympathetic response to the technological culture, that of the emancipists, found itself leaning on a broken stick. The criticisms levelled against the emancipatory position (section 2(iii))were specific to the articulations of that position by Berkhof and Derr, and do not apply to Gegorios' exposition. The emancipatory position differs from Gregorios' theology, in many important respects (for example, in its understanding of the imago Dei tradition and in its ontology), so Gregorios cannot necessarily be criticised on the same grounds as the emancipists merely because they represent the same general type of theological response to the technological culture. Instead, my critique of Gregorios is specific to his presentation.

One weakness of his approach relates to the apparent arbitrariness of his positive estimation of science and technology as agents of potential blessing and even salvation for the whole creation, instruments which enable the grace of God to be spread throughout the whole creation by man. There is no obvious theological basis for this estimation, and no indication of the criteria on which Gregorios bases his statements. The only one implied is that science and technology enable man to humanise the cosmos and to make himself the 'soul' of the universe. It is surely a statement of great faith in humanity and its enterprises to see this as a blessing to the cosmos, when the environmental crisis is aware of the poisoning of the cosmos by various types of pollution. It is also a statement of great faith to see science and technology as the means by which the grace of God may be spread to the whole of the creation;

the ecological structure of the cosmos means that benefit to one area of the cosmos is frequently offset by cost to another, and some advances only come at great cost and suffering to experimental animals. Gegorios' positive estimation of science and technology, at least with regard to their potential, is not based on the contemporary experience of these enterprises, nor are there any compelling theological grounds for that estimateion.

Another weakness of his approach relates to Gregory's epistemology. There is no observable correlation between virtue and godliness, on the one hand, and analytic intelligence and technical prowess on the other. For Gregory of Nyssa, the epinoia was an epistemological concept which related to the accuracy of the mind's ordering and structuring of its perceptions, the capacity for induction, conception, and synthesis.(219) It was plausible for Gregorios to extend this to the human capacity for science and technology, and also plausible for him to relate it to the restoration of the image of God in man. Here the plausibility falls short of proof,because the relation of science and technology to the epinoetic faculty and the restoration of the image of God in man breaks down. The human epinoia is limited by genetic endowment, then further limited by training in a specific direction at the expense of others, opportunity for its exercise, and other environmental factors. It is not free to grow without limit in proportion to the individual's growth in grace. On the other hand, one need not be a believer to be an excellent analytic scientist or engineer. There is therefore no reason to ascribe a positive correlation to the human capacity for science and technology (and success in those enterprises) with the restoration of the image of God in man. But Gregorios' conclusion rests on faulty logic. The image of God in man may grow as the individual pursues theōsis; the epinoia may grow more accurate in proportion to the growth of the image; therefore science and technology may grow more accurate, powerful, and penetrating in proportion to the growth in virtue of the individuals involved in those enterprises. That logic is sure, if Gregorios' premises are accepted. It does not admit Gregorios' conclusion, however, that humanity must therefore pursue science and technology as the means by which theōsis may take place.(220)

Gregorios attempts to address the contemporary situation of environmental and economic crisis on theological terms, as he states in the preface to The Human Presence,by going back to the classical Christian patristic tradition.(221) I contend that in adopting Gregory of Nyssa's ontology he has had to make a choice between fidelity to the eschatological aspects

of Christian truth, and contemporary relevance to the environmental crisis and the technological culture. Throughout his work, there is a persistent subjugation of the temporal to the eschatological which confuses the biological-historical species of humanity with the new redeemed eschatological humanity in Christ. Thus he writes, again in the preface, that

> 'the only humanity that can survive is the new humanity, the humanity that has now been inseparably, indivisibly united with God in Jesus Christ. And because of its locus in the one divine-human nature of Christ, the new humanity is a mediating humanity — a humanity that reconciles and unites God and the world. It is an incarnate humanity — a humanity that is an inseparable part of the whole creation and inseparably united to the creator. This, then, is the meaning of the human presence in the cosmos. To be with the one who unites. To be in Christ, uniting the divine and the human, the creator and the creation, the transcendent and the immanent, the spiritual and the scientific-technological. To enter the mystery of "Christ in us" ... as an integral part of the whole creation'.(222)

He is speaking of the human presence in the cosmos only in ultimate and eschatological terms, where the humanity that survives is the Christian community. There is a continual temptation to turn his book into a book about the history of the Christian community, which has a special history of its own in relation to the history of the world, and has its own future when the world's history perishes in the eschatological judgment. When he succumbs to that temptation, his book ceases to have any contemporary relevance to those 'outside' the believing community; the church is deprived of its prophetic witness to God's will for the present circumstances; and even the believer is deprived of theological orientation for his life in the technological culture, since that culture falls outside the book's purview which circumnambulates the church.

The reason for the persistence of this temptation may be inferred from the following passage, which is fundamental for Gregorios' understanding of humanity and therefore of the 'human' vocation in the cosmos and the 'human' enterprises of science and technology. He speaks of the plēroma as that which fills the gap (diastēma), and cites Ephesians 1:22 -23 which speaks of the Church as the plēroma of Christ. Here the church

> 'stands for the new humanity which, so to speak, "fills up" what is lacking in Christ. Christ, together with the new humanity --the "total Christ"

> — is the true plēroma that fills the gap between God's being and the universe, and participates fully in both. This is the great mystery of humanity — Christ in us, we in Christ. As we are identified as members of his body, Christ stands as the mediator between God and the universe. This is the true rationale for Gregory's understanding of the Platonic notion of man as methorios or mediator between God and the universe, as taking the creation into God and God into the creation, breaking across all diastēma'.(223)

Thus it is the redeemed humanity in Christ which becomes the mediator for the whole creation, which participates in God through the mediation of this humanity. For it is man in Christ who is the Saviour of the world.

Why does Gregorios understand man in this special way, concentrating more on redeemed eschatological man than on the biological commonality of the human species? The answer lies in the concept of participation and the effects of sin and redemption upon the functioning of the ontological hierarchy. Adam's sin disrupted the connection between man and God through which the creation was able to participate mediately in God; Christ, as the mediator between God and man, restored the connection. So man in Christ becomes the mediator in the eschatological Kingdom, and this is the only time when the whole creation may participate in God as he intends it to. It is only in the Kingdom that humanity may really fulfill its vocation to spread the grace of God through the whole of creation, animate and inanimate, and that human science and technology will be a blessing to the cosmos. Therefore, if the hierarchy is to function properly and participation - metousia is to describe the whole creation in its relationship to God, Gregorios can only refer to the eschatological future and to humanity as the eschatological and mediating humanity of the redeemed in Christ. When he does this, he fails to address the contemporary situation and speaks only to the special circle of believers, in order to describe to them the circumstances of the life to come and the places of science and technology in the life of the Kingdom.

It was stated in the preceding subsection, that the hierarchical ontology took precedence over the eschatological considerations of Christian truth; that is, that the ontology determined the expression and exposition of the eschatology. I have now shown that this happens because of the concept of participation, which Gregorios takes over from Gregory of Nyssa without question. So it is this concept which is

the root of his failure to address the contemporary ecological, economic, and technological situation when he addresses the new humanity in Christ. It seems to me that one way out of this impasse would be to allow the concept of participation to operate on a broader level, so that the unbeliever may participate in God through the believing humanity of his contemporaries around the world (as does the unbelieving spouse, 1 Corinthians 7:14). Gregorios does not consider this possibility at all, and so is caught between humanity in general and humanity in Christ. If the broader concept of metousia is theologically viable, however, it will require great subtlety in its outworking, but it will then have the advantage of rescuing Gregorios from a measure of irrelevancy.

It is evident that Gregorios' version of the Christ above the technological culture type is far more successful than the other representative of the type, the emancipatory position. As it stands, it has only a very tenuous grip on the contemporary situation, and it requires some theological care in its formulation — more care than Gregorios has given it, as I have implied above. It is certainly a position to be explored further, for all the benefits it will yield in the task of formulating an ecological theory.

This completes my survey of the four main theological positions espoused during the course of the C&S programme from 1966 to 1979. It has been possible to fit them all into the framework of a survey of theological attitudes to discipleship in the technological culture. The information that has been gleaned from my examination of the four positions and their attitudes to the technological culture, and my conclusions about ecological theology within the C&S programme from 1966 to 1979, may now be stated.

CONCLUSIONS: Ecological Theology Within the Church and Society Programme of the World Council of Churches, 1966 - 1979.

My survey of the Church and Society programme during the period under review showed, in Chapter Three, that there were four distinct theological approaches to the theological question of humanity's place in and influence upon the cosmos: these approaches were designated 'the emancipatory approach', 'the C&S theology of hope', 'the process theology approach of Charles Birch', and 'the Orthodox approach of Paulos Gregorios'. The main features of these approaches, their strengths and weaknesses, and the theological orientation they offered for life in the technological culture, were then examined in Chapter Four. It is now possible to draw together some of the main features of the C&S theology, as they have emerged during the discussions of the two preceding chapters.

The contents of the four theological positions may be described with the aid of the five questions listed at the beginning of Chapter Four, which dealt with the cosmos itself, the cosmos in consummation, the human relationship to the cosmos, God's relationship to the cosmos, and the theological evaluation of science and technology.

The cosmos. There was general agreement that the cosmos and its structure, processes, constituent ecosystems, and all its material-vital reality, was the subject of theological knowledge and discourse — at least in principle. The emancipatory approach was weak here, with its emphasis on history and purpose as the differentia between human and other types of existence. The other approaches accorded a high degree of theological importance to the physicality of the real world: the C&S theology of hope, represented by Gerhard Liedke, attempted an 'ecological exegesis' of the biblical texts; Birch's process theology is related to and formulated on the basis of his understanding of the world as an evolutionary biologist; and Gregorios' approach was based on an ontological structure of reality.

The cosmos in consummation. The consensus was that matter had an eschatological future, either on the basis that eschatology is the fulfillment of creation (Birch) or on the basis of Jesus' resurrection. Descriptions of that future varied, but in each approach nature's future was related positively to the human enterprises of science and technology. These enterprises were important in bringing nature to, and maintaining it in, its perfect consummated state before God.

The human relationship to the cosmos. All approaches agreed on humanity's biological contiguity with nature, but accorded it different degrees of theological importance; it was of minor importance as a corrective to titanism in the emancipatory approach, and was of fundamental importance in the articulation of Birch's process theology. All the approaches agreed that the human faculty for science and technology is a datum of human existence, that God has created man with this capacity for its exercise within the context of his creation, and agree further that the exercise of this faculty is required by God to be for human benefit and for the benefit of the life of the cosmos in toto. The faculty for technology was seen in relation to the imago Dei and dominium terrae traditions, especially in the emancipatory position, but there has been a shift away from this association to see technology as a theologically neutral phenomenon of human existence, whose importance derives not from anthropology per se but from the consideration of humanity's role in the cosmos. There has also been an increase in the emphasis on the need for technological restraint, social responsibility, and the conservation of species; this has corresponded to a new emphasis on humanity's biological contiguity with nature and its consequent view that nature is 'sister' to man. So the human relationship to nature has developed from the emancipatory view (that nature is a force from whose tyranny man is to free himself by his scientific and technological skill) to views which see nature as both material for human work, including that of bringing order to nature, and as sister to man. The concept of sisterhood includes the recognition that nature exists in its own right, has value for its own sake, and is fellow and equal partner with man in life before God.

God's relationship to the cosmos. There has been a growing consensus that the cosmos exists for its own sake and independently of its value for human existence. Birch and Gregorios in particular emphasise that there is an ontological contiguity between nature and humanity and God.

Science and Technology. These are generally highly esteemed. None of the approaches denies the worth of technology and the value of its benefits to human existence; none seeks the abolition of technological enterprise; and all seek its re-evaluation, the investigation of its assumptions and social-ethical aspects of its functioning, and the reform and redirection of some of its aspects. This is congruent with the general position of the World Council of Churches. Its goal of the

Just, Participatory, and Sustainable Society seeks to limit the use of technology to the earth's capacity to support the technological enterprise (with regard to availability and renewability of resources, and the maintenance of ecological homeostasis); to share the benefits of technological progress equally amongst the world's peoples; and to create social structures which will facilitate progress towards the just and sustainable society, and the maintenance of its proper functioning once the goal is achieved. The utopianism of this vision is reflected in some of the theological evaluations of science and technology, particularly in those of Birch and Gregorios. The C&S theology of hope, on the other hand, emphasises the ambiguity of technological advance, and allows for the appreciation of technology from the Third World perspective (technology as an instrument of oppression and subjugation, which feeds upon injustice and exploitation) in a way which the other approaches do not.

The four main approaches were data for a survey of attitudes to discipleship in the technological culture, parallel to H. Richard Niebuhr's survey 'Christ and Culture'. I showed in Chapter Four that the theological types of response to the question of culture could be adapted to the responses to the technological culture, and in fact the four main approaches all stay within the Niebuhrian framework as adapted. It is not possible, on the basis of my small sample of four theological positions, to draw general conclusions about the rejectionist, synthesist, sympathetic, ambivalent, and conversionist answers to the theological question of the technological culture, corresponding to those drawn by Niebuhr. It is nevertheless possible to report on the results of my survey.

Generally, the C&S approaches have all stayed within the median, as is to be expected since that typically represents the consensus of Christian thought. The only non-median response was given by Birch's process theology. The rejectionist answer to the technological culture was not represented, and neither was the median answer of ambivalence. This spectrum of responses highlights the facts that the C&S programme and the WCC generally have acknowledged the value to humanity of the technological culture and seen it as a part (albeit an imperfect part in its contemporary manifestation) of God's plan for human existence.

The two conservative approaches, namely the emancipatory approach and the Orthodox approach as articulated by Paulos Gregorios, both

represented a sympathetic approach to the technological culture. The roots of the emancipatory position were associated with the seventeenth century (Francis Bacon, Rene Descartes); Gregorios' roots were deliberately sought in the fourth century thought of Gregory of Nyssa. Their optimistic evaluations of science and technology must be seen in this light. It is significant that the other median position, namely the conversionist approach taken by the C&S theology of hope and Gerhard Liedke in particular, finds its origin in the sixties and seventies and the contemporary awareness of the ambiguity of technological progress and of humanity's extreme vulnerability to the consequences of its own ingenuity and skill. Its emphasis is on the transformation of the present creation, which is not yet 'good', towards the vision of goodness granted in eschatological faith. It is fundamental to this approach that it aims and impels the not-so-good towards the good; so it is not at all surprising that the ecological crisis has engendered this type of theological response, within the C&S programme and beyond (as shown by Moltmann's essay 'Creation as an Open System', discussed in Chapter One, section 3(iii) above).

The optimistic evaluation of technology and science as means of uncovering metaphysical reality has engendered the synthesist response to the technological culture in Charles Birch's process theology. It is significant that the participants in the C&S programme have, in the main, consistently rejected his approach. I have argued for its rejection on theological grounds, but I believe there are two other factors at work here. First, the C&S programme has encouraged dialogue between science and theology, but genuine dialectical interaction has proved elusive. Birch's approach supplies a unified and coherent view of reality which harmonises the theological and scientific interpretations of the world. But it does this with the confidence that science can unlock the key to all reality, including that of God. The C&S programme is seeking for dialogue with science, but not at the cost of unconditional capitulation to science, and has sensed that this is exactly what Birch's approach implies. So it has rejected Birch's process theology. Second, it has sensed an incompatibility between Birch's outspoken and impressive concern for the environment, for the restraint of titanism, for the right direction of the technological enterprise for the benefit of both humanity and the cosmos, as against his espousal of the synthesist response to the question of the technological culture. The integrity and coherence of Birch's approach

depends crucially on his confidence that every one else is wrong and that process theology supplies the world view required for obedience to God's purposes in creation. But the C&S programme discussions generally take the median positions and stay with the church of the centre, and so are inclined to suspect, and reject, non-median responses. Also, a lot is at stake if they commit themselves to Birch's vision: it is forbiddingly difficult to implement on a global scale if he is right, and the consequences are tragic if he is wrong.

Within the median approaches, the theological acceptance of technology by the sympathetic and conversionist approaches also allows for Christian involvement in the technological culture generally, and even for direct Christian engagement in the scientific and technological enterprises. They agree that science and technology need reform and redirection, and that the church (and its individual members) has a prophetic witness to declaim with regard to God's purposes for the cosmos, for humanity, and for human scientific and technological enterprise. But they have failed to provide the necessary theological criteria by which reform and redirection may be justified, initiated, and subsequently assessed; in fact, I have argued that they fail to address the contemporary situation generally. The emancipatory approach is the only exception here, and I have argued for its rejection on other theological grounds. With the C&S theology of hope and Gregorios' Orthodox approach, the basic problem is one of articulation, and the problem may be solvable by refinement and by further consideration of the issues involved. The theology of hope may be able to stay within the conversionist position and address the contemporary situation by reducing its emphasis on eschatological faith and the resurrection promises (which are difficult to interpret specifically to the technological situation), and by looking more to the whole biblical witness about the human relationship to the cosmos and the lights and words and truths which shine in the creaturely world. Gregorios' approach may be more relevant to the contemporary situation if he were able to formulate a new and broader concept of metousia (participation); he could perhaps do this in dialogue with Birch, yet retain his approach within the ambit of the sympathetic position. The most hope for ecological theology within the C&S context lies in the development of these two median positions and the refinement of their relatively successful representatives; for there is no prima facie reason evident that the sympathetic or the conversionist approaches should be incapable in

principle of addressing the contemporary situation as their current representatives have so far proved to be.

In Chapter One, I argued in section 3 that there were resources available in the sixties for the task of responding theologically to the environmental crisis, by looking at the thought of Bultmann, Tillich, Moltmann, et al; and I supplemented this in Chapter Two, section 4, by referring to ecological theologies from Barthian and process perspectives. Bultmann and Teilhard de Chardin provided little hope of success, but I argued that there seemed to be hope for process, Barthian, ontological, eschatological, and biblical theologians' approaches and responses. My account of the four main positions evident in the C&S programme shows that some of these options have been taken up after its rejection of the emancipatory approach at Zurich in 1973. There is a particularly strong resemblance between the C&S and the Moltmann theologies of hope, though Moltmann's emphasis on the suffering of God has not emerged in the C&S articulation; on the other hand, his emphasis that creatio ex nihilo implies creatio in nihilo is not far from the surface of the C&S position. This shows that the C&S programme has reflected some of the main features of the theological climate of the sixties (when the environmental crisis first became a public issue) and is to some extent a development and outgrowth of it.

How do the four theological approaches rate as ecological theologies in the sense of my definition given in Chapter Two? The theological discussion of humanity's place in and influence upon the cosmos has already been considered, and it is clear that the positions generally regard the cosmos as a systemic unity. The discussion of creation, redemption, and eschatology has also been covered, so it only remains to discuss the interdisciplinary aspect: what use, if any, do these theological approaches make of the scientific information available from the studies of ecology, the natural, life, and social sciences?

It is already evident that the C&S positions have made little use of scientific material, except in the most general sense of accepting an evolutionary theory of human biological origins, and of accepting in principle that the cosmos is a unified hierarchical ecosystem in which the earth functions as a subsystem containing the human species. Liedke did attempt to use a sociological theory of conflict amelioration in his theology of hope approach, but I have argued that his attempt must fail

on both theological (exegetical) grounds and on the basis of scientific method.

The dialogue between science and theology which the C&S programme seeks to encourage has occasioned good will and engaged the conscientious effort and time of many scientists (as at the MIT conference, for example); but it has not enjoyed the successes that have occurred outside the programme in the works of Arthur Peacocke, Günter Altner, Ian Barbour, Wolfhart Pannenberg, Mary Hesse, and others, or in the journal Zygon which (as its name may suggest) is devoted to the pursuance of such dialogue. Lindqvist had already noted this in his survey Economic Growth and the Quality of Life, which covered the C&S material from 1966 to 1974. The issues were pursued in general terms at Mexico City in 1975, and at Cambridge, England, in 1978, and it was hoped that the MIT conference would further and deepen this dialectical interaction. But the theological preparations for the conference, and the pressure of the conference situation itself, meant that this interaction did not occur at any significant level beyond the conversational.

Generally speaking, the C&S approaches have been theologies of humanity's place in the cosmos, but without reference to the specific scientific information about the cosmos except as the awareness of that information permeates the public consciousness and influences theological discourse at that level; the ill-fated approach by Birch is the only exception. This general lack of interdisciplinary involvement on the part of theologians is comparable to their inability to address the contemporary situation so far. It means that there has been only one ecological theology in the C&S programme, in the terms of my definition; otherwise, the theological approaches are all theological responses to the environmental crisis made in relative theological isolation.

As noted above, this response has taken place largely within the accepted confines of theological discourse, and has taken the form of adjustment: the theological locus of humanity's relationship to the cosmos is no longer seen exclusively as the imago Dei and dominium terrae traditions; the human biological contiguity with nature is now considered in theology; the association of the faculty for technology and science with the manifestation of God's image in man is questioned by some who regard the technological culture as a theologically neutral aspect

of human existence; and there is an increasing tendency to press science and technology into the service of environmental conservation and the benefit of both human and non-human beings.

This raises two questions. First, as to how far theology has followed the popular pressure towards the conservation of species and the need for technological restraint (in order to minimise pollution); in Barth's terms, how far theology has allowed itself to be dominated and shaped by non-theological influences. The lack of theological leverage on the contemporary situation presses this question home, to see if theology has unwittingly betrayed itself into becoming a cloak for fashionable dynamic environmentalist activism. The position most susceptible to this temptation is the theology of hope, which needs careful formulation so that the promise of the resurrection in conjunction with other criteria drawn from the contemporary theological and scientific understanding of the world may orient and direct contemporary action in specific ways: Gregorios must address the community of man and not only the eschatological community of the church. The second question is, whether dialogue with science will save theology from this temptation. There has been no space or opportunity to consider this question in any detail in this thesis, but it does seem plausible that theological failure to address the contemporary situation may be related to the theological failure to take account of the specific details and interpretations of that situation.

The organisers of the C&S programme were right to discern that the environmental crisis was an issue to be discussed at the theological as well as at the ethical level (an insight which, I think, they owe to Charles Birch); and they were right to hold theological consultations on the theme of humanity, nature, and God, and on science-faith dialogue. It is now evident that if their programme chooses to continue in this direction it should concentrate on shoring up the positions which are theologically viable and refining them in terms of inter-disciplinary content and relevance to the contemporary ecological-technological-economic situation. At the same time, it should continue to encourage theological discussion and the articulation of new positions as it has done in the past, involving as many theologians and scientists and others as possible in the inter-disciplinary facets of its programme.

This will require a fresh consideration of the C&S conference procedure, as I showed in my discussion of the 1977 Zurich theological

consultation (Chapter Three, section 2(iv)). I argued there that the consultation provided an opportunity which the organisers let slip, tragically, and compromised the theological success of the MIT conference thereby. The Zurich consultation involved theologians of the rank of Charles Hartshorne, Klaus Koch, and John Austin Baker, who presented their papers and helped in the compilation of the report. But no theological progress was made. The positions espoused there had already been established in the C&S forum, and Zurich only re-formulated and re-presented them; there was no meeting of positions, little interplay evident in the report, and no systematic overview of the relative strengths and weaknesses of the various positions. My contention is that the organisers could have, and should have, arranged for the availability and presentation of such an overview at Zurich. The consultation could then have focussed on comparisons and contrasts, merits and deficiencies of the positions, and for the modification and improvement of the various positions if no consensus position was forthcoming.

But this represents the dilemma of the C&S programme generally. It is concerned primarily, naturally, and properly, with issues of social ethics; its budget does not usually allow the luxury of a theological consultation unless it is evident that the ethical issue at hand demands it; it has no systematic theological (or ethical?) perspective on its own programme and the theological positions currently represented therein; so when it does hold a theological consultation, it is not able to utilise its opportunities to the full. This is the wisdom of hindsight, gained in the course of writing this thesis. But it does show that the C&S programme would benefit from occasional consideration and review of its theological methods, by the use of specialist theological consultants from time to time, and the oversight such specialists could provide.

In stating my conclusions so far, I am conscious that they contain a large measure of criticism. These criticisms are justified by the content and argument of this thesis, but they would be unbalanced and unfair if they were not complemented by an acknowledgement and appreciation of what the C&S programme has achieved. The C&S programme has taken a remarkably bold initiative in seeking to open dialogue between scientists and theologians, and to discuss theologically and ethically the extraordinarily difficult and complex issues of our day — which have recently included the environmental crisis, nuclear and alternative

energy strategies, genetic technology and biomedical ethics, as well as the perennial issues of national and international social justice. Such an undertaking is full of perils and pitfalls, and susceptible to unappreciative criticism from many quarters. But my own criticism must be set within the context of my desire to further this work and contribute towards its success. It is an extremely important work. The C&S programme continues to provide Christians with a forum for open debate on the one hand, and current specialist information from many disciplines on the other, so that they are therefore encouraged to face the global situation with realism, vision, and commitment. It has enabled many people from every nation on earth to face issues which are of far-reaching importance for humanity, and attempt to assess the responsibilities which this generation bears for the future well-being of the human species and the world it inhabits. Its contributions to the work of the United Nations have been solicited out of respect for its achievements, and in return these contributions have challenged a significant element of the world's political and economic leadership to think carefully about the assumptions and attitudes which currently dominate and shape life on this globe. I trust that the histories of the twentieth century world, when they come to be written, will record with gratitude that the response of the Christian churches to the new situation of environmental crisis was immediate, urgent, well-informed, intelligent, and represented (I dare to hope) a significant factor in changing the course of the world's history for the better.

FIGURE 1: The place of the Church and Society subunit within the World Council of Churches.

This is an approximate schematic interpretation of the administrative structure outlined in the current constitution, 'The Rules of the World Council of Churches', Nairobi pp.322-340

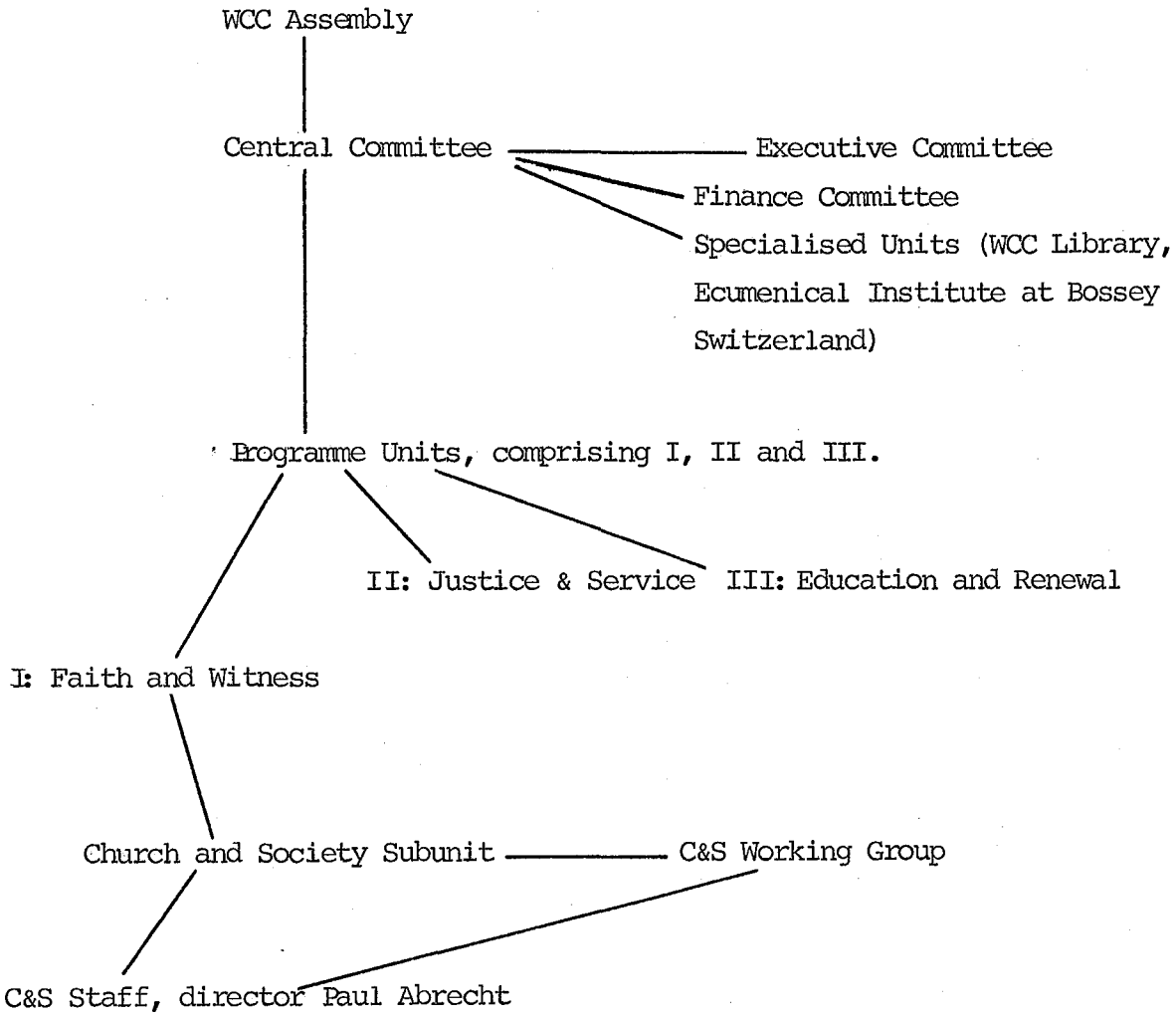


FIGURE 2: Life and Work - Church and Society

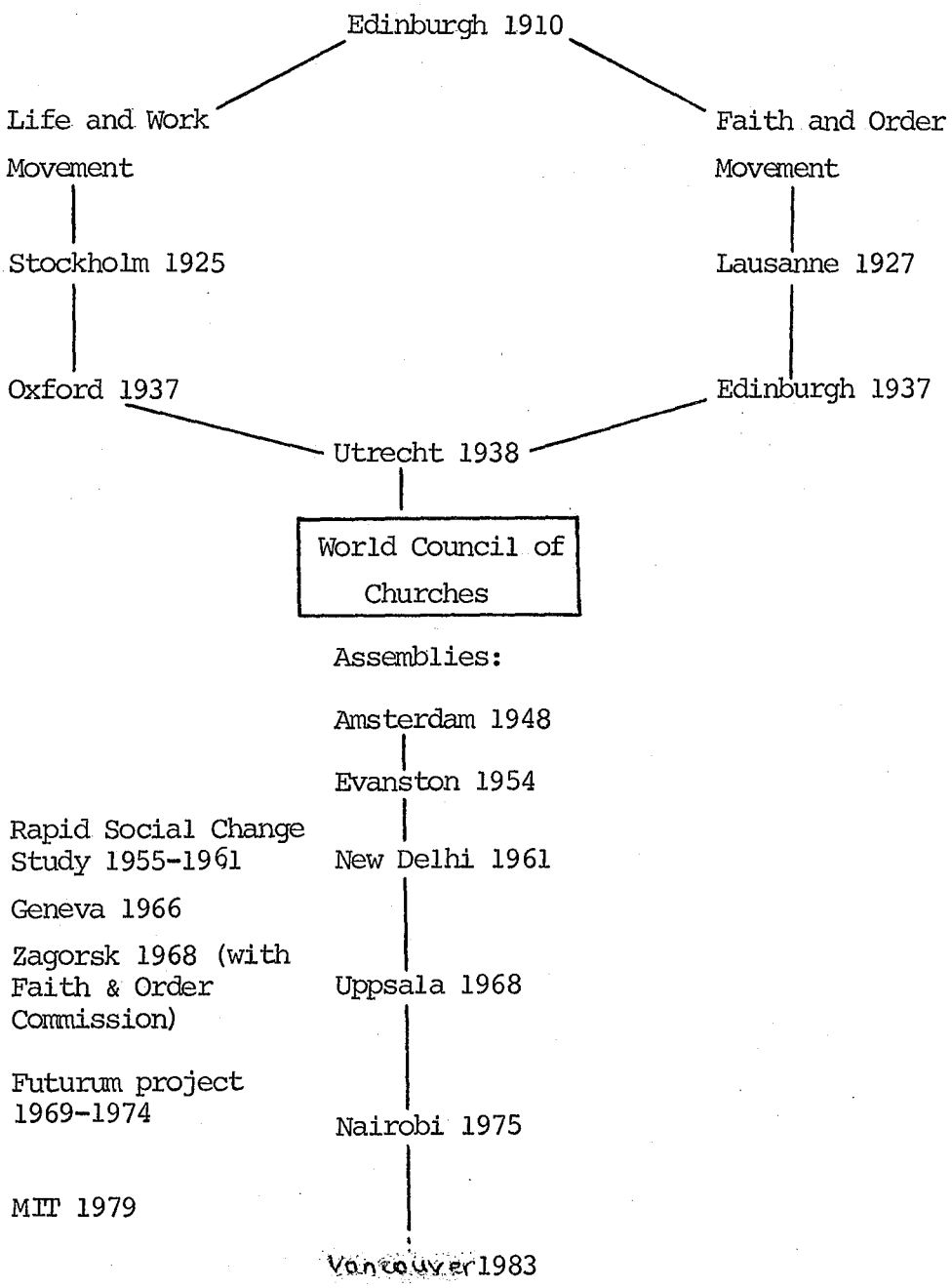


FIGURE 3: The Futurum project, 1969-1974

This outline is based on the 'Brief History of the Five-Year Ecumenical Inquiry on "The Future of Man and Society in a world of Science-based Technology"', Anticipation 17 (1974), 60-61

1969

Project authorised by WCC Central Committee

1970

Exploratory Conference in Geneva: From Here to Where?

1971

C&S Working Group meets, augmented by 30 scientists, Nemi (Italy)

1972

Regional Conference: Accra (Ghana)

U.N. Conference on the Human Environment: Stockholm

Global Environment, Economic Growth & Social Justice: Cardiff

1973

Regional Conference: Kuala Lumpur (Malaysia)

Regional Conference: Pont-à-Mousson (France)

Derr: Ecology and Human Liberation

Genetics and the Quality of Life: Zurich

Theological Critique of Scientific Rationality: Zurich

Population Policy, Social Justice and the Quality of Life: Leuenberg (Switzerland)

1974

Verghese completes (and circulates) the manuscript of The Human Presence

World Conference 'Science & Technology for Human Development: The Ambiguous Future and the Christian Hope': Bucharest (Romania)

Results of the Futurum project (Including the Bucharest report) submitted to the WCC Central Committee

FIGURE 4: From Bucharest to MIT.

This schematic summary of the relevant parts of the C&S programme has been based on the information contained in the various numbers of Anticipation.

1975

Ecumenical Hearing on Nuclear Energy: Sigtuna (Sweden)
Science and Faith: Mexico City
Nairobi Assembly

1976

The C&S Five-Year Plan, 1976-1981)
Energy for a Just and Sustainable Society) Glion (Switzerland)
The WCC Central Committee approves the C&S Proposal

1977

Humanity, nature and God: Zurich

1978

Science and Faith: Cambridge, England
Ecumenical Concerns in Relation to Nuclear Energy: Céligny (Switzerland)
A new Economics for the JPSS: Zurich

1979

M.I.T.
U.N. Conference on Science and Technology for Development: Vienna

COMMISSION FOR INTERNATIONAL JUSTICE AND PEACE
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OF ENGLAND AND WALES

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PRESIDENT RT. REV. JAMES O'BRIEN
Bishop in Hertfordshire
GENERAL SECRETARY R. S. BERESFORD

1 December 1981

J. McPherson Esq.
Department of Theology
Abbey House
Palace Green
D U R H A M DH1 3RL.

Dear Mr. McPherson,

I am very sorry that your letter about Catholic theologians and ecology was mislaid, and so has not received a reply.

The Commission has not made any official statements on the matter. The Bishops of England and Wales have made two brief statements on nuclear energy, the texts of which I append; published references are in the reading list. I have put into the reading list the more obvious references that occur to me, these are all official or quasi-official documents except Miss Triolo's pamphlet.

To my mind the 'ecology' theme is present in a sense in almost all Catholic thinking about moral issues including for example in the well-known teachings about abortion, and about artifical birth control. So it would be necessary to begin with fundamental moral theology. But perhaps this is not a useful approach for you. However, I see the theme in a large part of the documents I have included in the booklist, not just in the sections which are noted specially.

I regret that I don't know offhand of theologians' discussions on the matter. Barbara Ward is a consciously Catholic writer and the booklet we published in July by her : Peace and Justice in the World, naturally touches on environmental issues in an incidental way.

If you still need help on Catholic theological writers I would be happy to enquire further.

Yours sincerely,

R. S. Beresford

R S Beresford
General Secretary

Encs.

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Rev. J. McPherson
3 Farnley Ridge
Neville's Cross
Durham DH1 4HB
England

November 20, 1981

Dear Rev. McPherson,

As you know, the field of ecological theology is far from crowded with material. But I can suggest a few sources:

John Cobb's A CHRISTIAN NATURAL THEOLOGY, Philadelphia: Westminister Press.
Charles Birch's NATURE AND GOD, and other articles of his.
Ian Barbour's ISSUES IN SCIENCE AND RELIGION, Englewood Cliffs, N.J.: Prentice Hall.
* Barbara Swyhart's BIOETHICAL DECISIONMAKING, Philadelphia: Fortress Press.
* Kenneth Cauthen's CHRISTIAN BIOPOLITICS, New York: Abingdon
Conrad Waddington's various books, articles, etc.
The World Council of Churches' Report, FAITH AND SCIENCE IN AN UNJUST WORLD, Philadelphia: Fortress Press, 1980.

* these books are available from us, if you find them unobtainable in England

I hope this is of some help. You might also check the journal ZYGON for relevant material, if you haven't already.

Sincerely yours for the Center,

Philip Ricards

Philip Ricards
Librarian

THE ENVIRONMENT

Some references in Catholic teaching since 1965.

1. Gaudium et Spes — Pastoral Constitution on the Church in the World of Today, Vatican II, 1965. (CTS Do 363) Sections 33-39, 63-72.

2. Populorum Progressio — Encyclical Letter of Paul VI, 1967. (CTS S273) Section 14-34

3. Octogesima Adveniens — Apostolic Letter of Paul VI, 1971. (CTS S288) Section 21

4. Redemptor Hominis — Encyclical Letter of John Paul II, 1979. Sections 8, 15. (CTS Do 506)

5. Laborem Exercens — Encyclical Letter of John Paul II, 1981. Pages 99. Sections 4-7, 21-22, 24-26. CTS S 333

6. Barbara Ward :

   A New Creation? Reflections on the environmental issue

   Pontifical Commission Justitia et Pax, Vatican City, 1973. 70 pages. No. 5 of a series for the 1971 Synod of Bishops on Justice in the World.

7. The Universal Purpose of Created Things : On the Conference of the Law of the Sea. Pontifical Commission Justitia et Pax Working Paper no.7, Vatican City 1977. 11 pages.

8. Human Labour — Texts of John Paul II October 1978-November 1979 presented by Mgr. Romano Rossi, Vatican City 1981. No. 5 of the Pontifical Commission Justitia et Pax series : The Social Teaching of John Paul II. pages 60.

9. Nuclear Energy — A Christian Concern Sharon L. Triolo London : Catholic Truth Society 1978. (CTS S324)(pamphlet)

10. United States Catholic Conference Statement, 2 April 1981.

    Reflections on the Energy Crisis

    Printed in Origins, April 23, 1981, Vol. 10 no. 45, pages 706-719

11. Statement of the Bishops' Conference of England and Wales

    13 October 1978 on National Energy Policy.

    Briefing 20 October 1978, (Vol. 8 no. 34), page 4.

12. Statement of Bishops' Conference of England and Wales

    24 November 1977; Justice and Peace n. 6;

    Briefing 26 November 1977, (Vol. 7 no. 34), page 4.

R.S.B.
25 November 1981.

NOTES

In the notes which follow, authors and titles are given in abbreviated form, and the full bibliographical details are supplied later in the General Bibliography. References to reports of ecumenical conferences are given by conference location, year, and page number; thus Zurich 1973, 7, refers to page 7 of the official report of the 1973 Zurich working party on scientific rationality. Bibliographic details of such official documents are included in the appropriate section of the General Bibliography. The MIT conference presents a slight deviation from this pattern, because there were three volumes of official materials, which will be referred to as MIT/prep (the volume of preparatory readings), MIT/1 (which contains the addresses given at the conference), and MIT/2 (which contains the section reports adopted by the conference). There are two other abbreviations for books, as follows:

CD	Barth, Church Dogmatics
EGQL	Lindqvist, Economic Growth and the Quality of Life

Journals are abbreviated according to the abbreviations currently in use in Religious Index One: Periodicals XV, 1981. Journals which are not listed in the Index have been given their full names (Anticipation, Study Encounter, etc.).

CHAPTER ONE

1. A letter to Britain's Roman Catholic Commission for International Justice and Peace of the Episcopal Conference of England and Wales in London, produced a bibliography of several short statements and two small books; see my Appendix 1. The Church of England has produced two reports: in 1970, the report Man in His Living Environment, An Ethical Assessment; and the report Man and Nature in 1975.

2. See Figure 2, p.227. Also Duff, The Social Thought of the World Council of Churches, 28ff; Lindqvist, Economic Growth and the Quality of Life, 46ff.

3. Preston, 'A Breakthrough in Ecumenical Social Ethics?' in Technology and Social Justice, 39.

4. See Abrecht's account of the Futurum project prior to the Bucharest conference, in his 'Introduction' to Anticipation No.17; and Shinn, 'The Impact of Science and Technology on the Theological Understanding of Social Justice', Anticipation No.17, 52-59,esp.53f.

Chapter One cont'd.

5. Deuteronomy 28:1-24, Amos 4, Genesis 3 :17-19; see also Eichrodt, Theology of the Old Testament, Volume Two, Ch. XVII.

6. Plato, ΚΡΙΤΙΑΣ, 111,b4-d8, in J. Burnet (ed.), Platonis Opera IV, (Oxford, Clarendon Press, 1902); quoted in translation, Allaby and Bunyard, The Politics of Self-Sufficiency, p.50.

7. Quoted in Black, The Dominion of Man, p.10. The plaintiff was John Evelyn, author of Fumifugium, or the air and smoake of London dissipated, together with some Remedies humbly proposed.

8. For a brief survey, see Arvill, Man and Environment, chapter 7.

9. Arnold S. Nash, 'Food, Population and Man's environment', in Preston (ed.), Technology and Social Justice; Arvill, op.cit., chapter 15.

10. Black, op.cit., 100. Black has a summary account of Malthus, from the viewpoint of the professional ecologist.

11. Ibid., 100,6. Ecological homeostasis is the capacity of an ecosystem to recover its balance after disruption.

12. Ward and Dubos, Only One Earth, chapter 1.

13. Black, op.cit, chapter 1; Carson, Silent Spring, passim.

14. DDT = dichloro - diphenyl - trichloro - ethane; see Carson, op. cit., 35-38.

15. Ward and Dubos, op.cit., 81.

16. Birch, Confronting the Future, 104f.

17. Ward and Dubos, op.cit., 27.

18. This is the theme of Carson, Silent Spring.

19. Birch,op.cit., 105.

20. Dr. David Price , of the United States Public Health Service, from Public Health Reports 74 (1959), 693-699, quoted in Carson, op.cit., 168.

21. The result of this cooperative effort is the work by Ward and Dubos, op. cit. It has a preface by Maurice F. Strong, the Secretary-General to the Conference. The experts are listed in the book, 13-22.

22. Ibid., 25.

23. Ibid., 28.

24. Ibid., 30.

25. Ibid., 47.

Chapter One Cont'd.

26. London, Duckworth, 1974, second edition 1980. My references are to the second edition.

27. Ibid., viii.

28. Ibid., ix.

29. Ibid, Chapter 7: see also the Appendix (to the second edition), 'Attitudes to Nature'.

30. Val Routley, 'Critical Notice: John Passmore, Man's Responsibility for Nature,' Australasian Journal of Philosophy, 53, August 1975, 171-185. See also the extended statement of the Routley position, Richard and Val Routley, 'Human Chauvinism and Environmental Ethics', in D.S. Mannison et al., Environmental Philosophy 96-189.

31. Val Routley, op.cit., 171, Routley's emphasis.

32. Ibid., 184: 'this scarcely differs from the argument that murder is justifiable because people also die of natural causes'; the reference is to Passmore, op.cit., 118.

33. Val Routley, op.cit.,173.

34. Loc. cit.

35. Ibid., 174, Routley's emphasis.

36. Mannison et al. shows the present state of play, in which both sides are represented and evaluated.

37. 'Rights for Both, Man and Nature? (An Ecumenical Debate about Process Theology's Perspective on the Environmental Crisis)', Anticipation 16, 1974, 20-36.

38. For example: Foster, 'The Christian Theology and the Modern Science of Nature'; Collingwood, An Essay on Metaphysics, Part III A; Oakley 'Christian Theology and the Newtonian Science: The Rise of the Concept of the Laws of Nature'; Hooykass, Religion and the Rise of Modern Science.

39. So Cox, The Secular City. Cox speaks of the 'disenchantment of nature' as 'an authentic consequence of biblical faith' which enables the technological aspect of secularisation to occur (17f, 21-24). See also my discussion of the 'emancipatory' position below, Chapter Four, section 2.

40. Science, March 10, 1967. Reprinted in Barbour (ed.), Western Man and Environmental Ethics; Spring and Spring (eds.), Ecology and Religion in History. My references to White's paper are to its appearance in Barbour's anthology. For direct responses to White, see these anthologies and, inter alia, Bennet, 'On Responding to Lynn White: Ecology and Christianity'; Khalil, 'The Ecological Crisis: an Eastern Christian Perspective'; and Schaeffer, Pollution and the Death of Man.

Chapter One Cont'd.

41. White, op.cit., 25.

42. Loc. Cit.

43. Ibid., 27.

44. 'Continuing the Conversation', in Barbour, op.cit., 58.

45. 'The Religious Background of the Present Environmental Crisis', reprinted in Spring and Spring, op.cit.

46. See Passmore, op.cit., and the references therein, as well as the anthologies mentioned in n.40 above. On the continent, see Amery, Das Ende der Vorsehung.

47. 'Man's Responsibility for the Environment'. Darling states that, in brief, 'the ideal is expressed by saying that the aristocrat is the servant of his people. It involves the notion of restraint ... Superiority is accepted, not assumed in conceit, nor disclaimed in mock modesty; when superiority is known to its holder it is accepted humbly as a burden proudly carried' (p.117). William Temple had expressed this idea in a Christian context in 1944: 'As animals we are part of nature, dependent on it and interdependent with it. We must reverence its economy and co-operate with its processes. If we have dominion over it, that is as predominant partners, not as superior beings who are entitled merely to extract from it what gratifies our desires' ('What Christians Stand for in the Secular World', section 3).

48. Darling, op.cit., 119, Darling's emphasis.

49. Ibid., 122.

50. Loc. Cit.

51. For examples see, inter alia, Clines, 'The Image of God in Man'; Barr, 'The Image of God in the Book of Genesis'; Sawyer, 'The meaning of בְּצֶלֶם אֱלֹהִים in Genesis i - xi'. For surveys of the interpretation of the image concept, see Clines, op.cit., 54-61; Barth, CD III.1 , 191-206.

52. Sawyer, op.cit., ; also Barr, 'Man and Nature', reprinted in Spring and Spring, op.cit.

53. Liedke, 'Von der Ausbeutung zur Kooperation'; Krolzik, 'Zur Umweltkrise und ihrer Entstehung'; idem, Umweltkrise: Folge des Christentums?

54. Passmore, op.cit., 19; Liedke, Im Bauch des Fisches, 66f.

55. Discourse on the Method, Part Six; in Martin Hollis (ed.), The Light of Reason,, 82ff.

56. For a brief survey, see Hendry, Theology of Nature, Chapter 1.

57. This is demonstrated by Wiltsher, 'The Biblical Teaching on Creation in Modern Christian Theology'.

Chapter One Cont'd.

58. Liedke, op.cit., 21f.

59. Ibid, 63-70. The first creation was the creation of order out of chaos, by divine fiat; man, as the image of God, imitates this type of creation by bringing order to the chaos of nature.

60. Liedke, 'Solidarity in Conflict',73.

61. 'Der Satz von Gottes Schöpfer - und Herrschertum hat seinen legitimen Grund nur im existentiellen Selbstverständnis des Menschen': Bultmann, quoted by Liedke, Im Bauch des Fisches, 74.

62. Westermann, Creation, 1-4; Wiltsher, op.cit.,; Liedke, op.cit., 72, speaks of 'creation without nature' as the modern phase 'in der wir noch stehen, [die] unter dem Eindruck des Trommelfeuers naturwissenschaftler Kritik eine Art Flucht nach vorn angetreten [wurde] . "Schöpfung" sollte mit dem Realitätsbegriff der neuzeitlichen Naturwissenschaft, mit dem Bereich der res extensae praktisch nichts mehr zu tun haben."Schöpfung" war ein Interpretationsdatum der Geschichte'.

63. Cobb, God and the World, 123f.

64. Ibid., 124, 123.

65. Ibid., 137f. Cobb's choice lies with Alfred North Whitehead and process theology.

66. Macquarrie, Twentieth Century Religious Thought, 379.

67. Ibid., 377,380.

68. Ibid., chapter XXIV.

69. Loc. cit.

70. Liedke, op.cit.,; Cobb, op. cit.

71. There has been considerable cooperation between the Roman Catholic Church and the World Council of Churches, at a number of levels (e.g. between SODEPAX and the Humanum Foundation). See, for example, Preston (ed), Technology and Social Justice, and espececially the papers by Duff, 'The Common Christian Conern', and de Vries, 'The Background of the Text in Ecumenical Social Ethics'. Nevertheless, concepts and approaches characteristic to Roman Catholic theology do not appear in the Church and Society resource materials, as will be evident in my Chapter Three below.

72. Macquarrie, op.cit., sections 112, 115.

73. For surveys, see Macquarrie, op.cit; Nichols, Systematic and Philosophical theology; Zahrnt, The Question of God; Pailin,'Theology'.

74. E.g. Young, Creator, Creation and Faith, surveys the different theological approaches taken by Barth, Tillich, Bultmann, and Moltmann; their treatments of the themes of creation, Fall, and new creation; and the practical implications of their approaches for social justice and environmental ethics.

Chapter One cont'd.

75. Chapter Two, section 4(ii), and Chapter Four, section 4.

76. E.g. Reed, 'Towards a Religion of the Environment'.

77. Section 4(iii).

78. Tillich, Systematic Theology, III, 17-31 and chapter XXIII.

79. Ibid., chapter XXIV.

80. Ibid., 34.

81. Ibid., 20.

82. Ibid., 19.

83. Young, op.cit., 206, n.36, cites an unpubished essay by Michael Moore, 'Christian Faith and Environmental Crisis in the Theology of Paul Tillich' (New Haven, 1974); see also Stock, 'Tillichs Frage nach der Partizipation von Mensch und Natur'.

84. Tillich, op.cit., 224; Young, op.cit., 125.

85. Tillich, op.cit., 34ff, 77ff.

86. Ibid., 436, 432.

87. Young, op.cit., 126.

88. See the discussion of Birch's process stance, in Chapter Four, section 4 below; also see Chapter Two, section 4(ii).

89. Macquarrie, 'Creation and Environment'; for criticism of Macquarrie's stance, see Young, op.cit., 124-127.

90. Macquarrie, 'God and the World, One Reality or Two?'. This was followed by 'A Comment' from Brian Hebblethwaite, to which Macquarrie replied in a 'Letter to the Editor' (Theology, LXXV, No.628, October 1972, 539f).

91. Heidegger, 'The Question Concerning Technology' and Other Essays; for criticism, see Waterhouse A Heidegger Critique.

92. Young, op.cit., 128f.

93. The Historie/Geschichte distinction is discussed at length in Malet, The Thought of Rudolf Bultmann, 61-80.

94. id., 9f.

95. Words written by Bultmann in 1926, and quoted by Young, op.cit., 116; they show the persistence of Bultmann's distinction between nature and history.

96. Malet, op.cit., 93-101.

97. Bultmann states that he is not guilty of making an ontological separation between the realms of history and nature. See Minear, 'Rudolf Bultmann's Interpretation of New Testament Eschatology', and Bultmann's 'Reply'.

Chapter One cont'd.

98. Young, op.cit., 143f.

99. Malet, op.cit., 88-93.

100. Bultmann, op.cit., 268.

101. Ibid., 267.

102. Malet, op.cit., has Bultmann's enthusiastic endorsement and contains a very lucid and sympathetic account of his approach. For another evaluation, see Roberts, Rudolf Bultmann's Theology: A Critical Interpretation.

103. Moltmann, Theology of Hope, published 1967.

104. Idem, 'Creation as an open System', in The Future of Creation.

105. Macquarrie, Religious Thought, 391.

106. Young, op.cit., 147.; see also Macquarrie, loc.cit.

107. Young, op.cit., 156-161, describes the theology of Rubem Alves (who has figured in ecumenical discussions) in the framework of Moltmann's theological approach.

108. Moltmann, Religion, Revolution and the Future (1969), quoted by Young, op.cit., 149. This interpretation is reiterated in the essay 'Creation as an Open System' (p.120 therein) and indeed is fundamental to it.

109. Young, op.cit., 149f.

110. Ibid., 153-155, 186-198.

111. Moltmann, 'Creation as an Open System', 116.

112. Ibid., 120.

113. Young, op.cit., 151-153.

114. Moltmann, op.cit., 115f; also p.189 n.4, for Moltmann's comment on Pannenberg. Moltmann agrees with Pannenberg that God 'is the power of the future', but adds the dimension of God's suffering.

115. Ibid., 118f.

116. Ibid., 119.

117. Ibid., 190 n.14. The concept originates in thermodynamics and has proved useful in theoretical biology. Moltmann uses it metaphorically and without reference to the specific content or nuances of the scientific concept, being more concerned with 'openness' to the historical process and to God.

118. Ibid., 122.

119. Ibid., 126.

Chapter One cont'd.

120. Ibid., 127.

121. Ibid., 129.

122. Loc. cit.

123. See Julian Huxley's 'Introduction' to Teilhard's posthumous The Phenomenon of Man. See also Towers, Teilhard de Chardin, for a brief an enthusiastic account of Teilhard's life and thought; and Passmore, The Perfectibility of Man, 251-259 (and references cited there).

124. Towers, op.cit., 35-38; Huxley, 'Introduction', 18f. The Christogenic process uses the 'radial energy' of increasing complexification, and the 'Christic' energy manifest in a 'spiritually converging world' (Teilhard, op.cit., 297).

125. Teilhard, op.cit., 297.

126. Reed, op.cit.

127. Teilhard, op.cit., 289.

128. Ibid., 278-285.

129. Ibid., 308 n.1.

130. Ibid., 288.

131. Reed, op.cit., seems to imply the contrary. But his 'religion of the environment' is really an attempt to justify the study of ecological science on the Teilhardian principle, which makes 'ecology' the study of the biosphere and neosphere together. This is very different from the issue of restoring 'nature' to theological discourse.

132. von Rad, Old Testament Theology, two volumes published in 1962 and 1965 respectively; Eichrodt, Theology of the Old Testament, two volumes published 1964 and 1967 respectively. See also Wiltsher, op.cit., esp. chapters 3 and 4; though Eichrodt was not one of the biblical scholars examined in Wiltsher's study, he conforms to the general pattern.

133. von Rad, 'The Form-Critical Problem of the Hexateuch' and Other Essays; Wiltsher, op.cit., 59-68.

134. von Rad , Old Testament Theology, vol.2, 137,139.

135. Wiltsher, op.cit., 62f; Liedke, Im Bauch des Fisches, 75-77.

136. Eichrodt, op.cit., vol.2, chapter XV.

137. Ibid., 98, Eichrodt's emphasis.

138. Ibid., 100f.

139. Ibid., 110.

Chapter One cont'd.

140. Ibid., 116.

141. See section 2 above. Cf. Passmore, Man's Responsibility for Nature: 'Christian theology, however, has in the past proved itself to be remarkably flexible. Theologians are now busily attempting to work out new attitudes to nature, still consonant in a general way with traditional Christianity but reverting in important respects to a prelapsarian conception of man and man's role and denying that men have a 'sacredness' which animals do not possess. For my part I more than doubt whether Christian theology can thus reshape itself without ceasing to be distinctively Christian' (p.184). His argument is that 'the concept of the sacred' is to be rejected, and only then will men see themselves as 'quite alone, with no one to help them except their fellow men; products of natural processes which are wholly indifferent to their survival; [and thus be able to] face their ecological problems with their full implications'. (Loc.cit.). In other words, either ecological theology cannot be Christian, or it cannot serve as a foundation for environmental ethics.

CHAPTER TWO

1. Holmes (ed.), Henderson's Dictionary of Biological Terms.

2. Gray, The Dictionary of the Biological Sciences.

3. The idea of an ecological approach to theology is discussed briefly in Chapter 4 of Cobb and Griffin, Process Theology; see also McCloskey's discussion of possible meanings for the expression 'ecological ethics', in his paper 'Ecological Ethics and its Justification: A Critical Appraisal'.

4. So Lord Gifford, in establishing the Gifford Lectures in Natural Theology: 'I wish the lecturers to treat their subject as strictly natural science ... without reference to or reliance upon any supposed special exceptional or so-called miraculous revelation' (quoted by William Temple in the 1934 Gifford Lectures, Nature, Man and God). See also Cobb, A Christian Natural Theology 252-270.

5. So Cobb and Griffin, op.cit., chapter 4; Hendry, Theology of Nature, esp. chapter 1.

6. There is an extensive literature about dialogue between scientists and theologians. See, for example, Barbour, Science and Religion; for attempts at dialogue from the scientists' perspective, see Birch, Nature and God; Peacocke, Science and the Christian Experiment, idem, Creation and the World of Science; idem (ed.), The Sciences and Theology in the Twentieth Century. In the German literature, Günter Altner has earned doctorates in both biology and theology; see his Schöpfungsglaube und Entwicklungsgedanke in der protestantischen Theologie zwischen Ernst Haeckel und Pierre Teilhard de Chardin. In the ecumenical forum, see the reports of the consultations held at Mexico City (1975) and Cambridge, England (1978), as well as the MIT conference.

Chapter Two cont'd.

7. Kaufman, 'A Problem for Theology: The Concept of Nature'.

8. The term 'Theologie der Natur' is used equally to describe 'theology of nature' and what I prefer to call 'ecological theology'; the issue of Evangelische Theologie devoted to ecological theology (37/1, Jan-Feb 1977) was titled 'Zur Theology der Natur', and the only occurrence of the term 'Ökologische Theologie' I have seen is in Liedke, Im Bauch des Fisches.

9. Sittler, The Ecology of Faith.

10. Cobb, Is It Too Late? A Theology of Ecology, has a very strong ethical orientation. Its theology is described briefly in section 4(ii) below.

11. Laszlo, The Systems View of the World, and the bibliography there which lists works of natural, life, and social sciences, as well as philosophy, which adopt a 'systems' approach.

12. Ibid. Some theologians have attempted to use the insights of systems philosophy: Vaux, Subduing the Cosmos; Ellul, The Technological System; Moltmann, 'Creation as an Open System'; and Hutchingson, 'The World as God's Body: A Systems View'.

13. Of course no system is 'self-contained' or 'self-complete' with reference to God — these adjectives refer only to empirically observable phenomena.

14. See above, Chapter One; and Morrison, 'The Nature of Strategic Nuclear Weapons'.

15. See my account of the debate between Passmore and the Routleys, above, pp.9f.

16. Section 4(iii) below: Liedke, op.cit; Steck, World and Environment.

17. For a theologian's response to this evidence and its implications, see Hefner, 'Towards a New Doctrine of Man', esp.238-250.

18. This is one of the motivations for dialogue between scientists and theologians; see, for example, my description of Birch's approach in Chapter Four, section 4(i) below.

19. In the ecumenical discussions, see Chapters VI and VIII of the Geneva 1970 report.

20. Chapter One, section 3 makes it clear that Tillich, Bultmann and Moltmann would return different answers to this question.

21. Other doctrines are involved in the discussion as well — see section 4(iii) below, and n.148.

22. CD III.2, section 43.

Chapter Two cont'd.

23. Of the main theologians of the sixties, Barth is the only one likely to object to the enterprise of ecological theology — as my survey of Chapter One, section 3 shows.

24. Barth states clearly that science and theology have their own separate and legitimate realms (CD I.1 section 1.1; III.2., section 43.2; IV. 3(1), section 69.2). In the Preface to CD III.1 he states that 'There is free scope for natural science beyond what theology describes as the work of the Creator ... I am of the opinion, however, that future workers in the field of the Christian doctrine of creation will find many problems worth pondering in defining the point and manner of this twofold boundary' (page x).

25. CD I,1 section 7. Conformity with the biblical witness is an integral part of the necessary reference to the Word of God.

26. CD III.2., section 43.1, 17f.

27. Ibid., 18f.

28. Ibid., 19.

29. Ibid., 26-41.

30. Ibid., 40.

31. Ibid., 42.

32. Ibid., 43.

33. Loc. Cit.

34. Ibid., 24-26.

35. Ibid., 23.

36. Ibid., 7.

37. Ibid., 9.

38. Ibid., 10.

39. Loc. cit.

40. 'Dogmatics itself ... [is] a confronting of the Church's proclamation with the Word of God. In this way Barth puts the theologian in the position of having to claim that the dogmatics he writes is subject to, and the result of, a new divine initiative, a decision of the Word of God himself ... He must claim, and clearly seek to make good his claim by constant reference to the Scriptures, that in his work the Word of God is itself newly challenging the Church's proclamation' (Sykes, 'Barth on the Centre of Theology', in Sykes (ed.), Karl Barth — Studies of his Theological Methods; Sykes' emphasis, Cit.p.34).

41. CD III.2, section 43.1, p.17.

42. Loc. cit.

Chapter Two cont'd.

43. CD III.1, section 41, p.42.

44. Ibid., 228-329 and 94-228 respectively.

45. Barth's exegesis in CD III.1 has been studied as part of another thesis at the University of Durham, and the argument of my next two paragraphs depends upon this thesis: Wiltsher, 'The Biblical Teaching on Creation in Modern Christian Theology'. See also D.F. Ford, 'Barth's Interpretation of the Bible'.

46. Ford, op.cit., 55, quotes a nice anecdote to this effect.

47. 'Why did the first man have to fall into that deep sleep when the work of God was done in which the woman had her origin? From the standpoint of the New Testament it is because the Church of Jesus Christ was to have its origin in His mortal sleep and to stand complete before Him in His resurrection.

'Why had the woman to be taken out of the man... i.e. be "formed" from his rib? Because the death of Jesus was to be His sacrifice for His Church, and its reconciliation an exchange between divine glory and human misery ... He [Jesus] recognises [the Church] as His body, formed from what was taken from Him, and alive through His death' (CD III.1, p.321).

48. Wiltsher op.cit., 21; Barth says that 'The man of whom the [second creation] saga spoke, objectively if not subjectively, is ... this man Jesus. So near are we in this second creation history to the threshold of the history of the covenant and salvation that, even though we continue to give due attention to the other strata of its content, we cannot interpret it finally, and therefore decisively in any other way than this' (CD III.1, p.230).

49. Wiltsher, op.cit., 155 ff; Steck, op.cit.

50. CD IV.3(1), section 69, pp.135-165.

51. Ibid., 137.

52. Ibid., 151-153.

53. Loc.cit.

54. Ibid., 136; see also his discussion on pp.153-164.

55. Ibid., 153.

56. Cf. CD III.2., section 44.1.

57. CD IV 3(1), section 69.2, pp.144f and 156f.

58. CD III.2., section 43.2.

59. Loc.cit.

60. Loc.cit.; also CD IV.3(1), pp.136f and 156f.

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61. CD III.2, section 43.1, pp.7-11.

62. Ibid., 6f.

63. Ibid., 17.

64. Ibid., 8.

65. Ibid., 23-25; see also 12f, and 79-91.

66. Ibid., 11.

67. CD IV. 3(1), section 69.2; the two foci are discussed on pp.135-155, 155-165, respectively.

68. Ibid., 140.

69. Ibid., 141.

70. Ibid., 147f.

71. Ibid., 137ff, 152f.

72. Ibid., 159.

73. Ibid., 163.

74. Ibid., 162.

75. Ibid., 147f.; Steck, op.cit.; section 4(iii) below.

76. CD IV.3(1), section 69.2, 159.

77. Ev Th 34/6, Nov-Dec 1974, 'Anthropologie und Naturverhältnis; 37/1, Jan-Feb 1977, Zur Theologie der Natur.

78. Ibid., 33-49. See n.8 above, on the German use of the term 'Theologie der Natur' as synonym for 'Ökologische Theologie'.

79. Günter Altner, 'Zu diesem Heft', 2.

80. Dembowski, op.cit., 33.

81. Loc. cit.

82. Loc.cit.

83. Ibid., 41.

84. Loc. cit.

85. Loc. cit.

86. Loc.cit.

87. Loc.cit. : 'Natur wird zum Dämon'.

88. Loc. cit.

89. Ibid., 34f.

Chapter Two cont'd.

90. Ibid., 36.

91. Ibid., 42f.

92. Ibid., 47.

93. Ibid., 48: 'Wahrnehmung vollzieht sich als Erkennen, das offen, umfassend differenziert, klar und kritisch vernimmt, was ist, woher und warum es ist, was daraufhin möglich und was nötig ist'.

94. Loc.cit. There is a similarity between Dembowski's concept of Wahrnehmung, and Gregory of Nyssa's concept of epinoia (which is important to the discussion in Chapter Four, section 5 below); this similarity may bear further investigation.

95. Loc. cit.

96. Ibid., 37.

97. Ibid., 43f.

98. Ibid., 37: 'Im Rahmen der Interaktion mit Menschen, ihrer "Kultur" im Verhalten und Verhältnissen, nimmt Jesus Christus "Natur" wahr'.

99. Loc. cit. Dembowski cites Mk 6:14ff, Mt 6:28ff, Mk 4:36ff, Mk 2:23ff and Mk 8:20 in support.

100. Ibid., 38.

101. Ibid., 38f.

102. Ibid., 40.

103. Ibid., 49.

104. Ibid., 33.

105. Ibid., 34.

106. This theme is strong in Birch's presentations also: see his addresses to the Nairobi Assembly and to the MIT conference.

107. See Chapter Three; and Chapter Four, section 4 below.

108. For a surprising example, see Hartshorne's only presentation to the Church and Society Programme, at the 1977 Zurich theological consultation on Humanity, Nature, and God: Hartshorne, 'God and Nature'.

109. On Whitehead's philosophy, see (for example) Kline (ed.), Alfred North Whitehead: Essays on His Philosophy. On its adequacy from the perspective of contemporary science (with regard to quantum mechanics and relativity theory in particular), see Jones, 'Bell's Theorem, H.P. Stapp, and Process Theism'; Wilcox, 'A Question from Physics for Certain Theists'; Lewis S. Ford, 'Is Process Theism compatible with Relativity Theory?' On process theology generally,

Chapter Two cont'd.

see Whitney, 'Process Theism: Does a Persuasive God Coerce?'; Gunton, 'The Knowledge of God According to Two Process Theologians: A Twentieth Century Gnosticism', idem, Becoming and Being; Meynell, 'The Theology of Hartshorne'; Clarke, 'God and Time in Whitehead'; Nelson, 'The Resting Place of Process Theology'; Reitz, 'Was ist Prozeßtheologie?'; Scholder, 'Geleitwort' to the translation (Der Preis des Fortschritts) of Cobb, Is it Too Late?. These references serve to indicate that the debate about process thought is wide-ranging, complex, and the subject of vast literature.

110. After this chapter was written, I discovered another article by Cobb, but the abstract supplied in Religious Index One: Periodicals XV, July-Dec.1981, p.182, implied that it covered much the same ground as Cobb's other works: John B. Cobb, Jr., 'Process Theology and Environmental Issues', J Rel 60, October 1980, 440-458.

111. Birch and Cobb, 'God's Love, Ecological Survival and the Responsiveness of Nature'; idem, The Liberation of Life.

112. Cobb, God and the World, 9.

113. Ibid., 10.

114. Ibid., 117-138, esp. 124-127 and 130-136; Is It Too Late? chapter 15.

115. God and the World, 138.

116. Too Late?, 124.

117. Ibid., chapter 10.

118. Ibid, 124. See also the discussion of the evolutionary process in Cobb and Griffin, Process Theology, 63-68, and the chapter 'God as Creative-Responsive Love', 41-67.

120. 'Novelty', 'complexification', 'beauty', and 'enjoyment' are terms with special nuances for process thought. On 'beauty' see Cobb, Christian Natural Theology, 98-108; on 'enjoyment', see Cobb and Griffin, Process Theology, 16-18, 54-57, 63-68.

121. Cobb and Griffin, op.cit., 151.

122. Cobb, Too Late?, 125.

123. Cobb and Griffin, op.cit., 76-79.

124. Cobb, God and the World, 95: 'Our final complaint against God may be that he has made us such that we do in fact destroy one another rather than cooperate in the creation of a better world.'

125. Cobb and Griffin, op.cit., 76-79, esp. 79: 'working out an ecological ethic will be a gigantic undertaking. The main point ... is that process thought provides the theoretical basis for such an ethic.' Also 143, where it is stated that the chapter on the environmental crisis 'serves to summarise process theology'.

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126. Ibid., Chapters 5; Cobb, Christian Natural Theology, Chapter II and III.

127. Cobb, Too Late?, 87.

128. Ibid., 85.

129. Ibid., 87-91; c.f. Barth, CD III. 2, section 46.

130. Cobb, Too Late?, 91.

131. Cobb, God and the World, 94.

132. Cobb and Griffin, op.cit., 149.

133. Cobb, Too Late?, 136.

134. See my Chapter One, section 2.

135. Wiltsher, op.cit.: Chapter 5 describes some features of the biblical reflection on creation that have been neglected; Chapter 4 contains a comparison of theologians with biblical scholars in their treatments of the creation themes.

136. English translation, Blessing in the Bible and the Life of the Church, 1978.

137. Ibid., chapter one.

138. Ibid., 6.

139. Ibid., 26-29.

140. Ibid., 59.

141. Liedke, Im Bauch des Fisches , 95. Westermann's full development of the concept of das Grundgeschehen is his massive commentary on Genesis in the Biblische Kommentare series. See also Westermann, 'Die theologische Bedeutung der Urgeschichte'; idem What Does the Old Testament Say about God?

142. Liedke, 'Solidarity in Conflict', 73.

143. English translation, World and Environment, 1980.

144. Ibid., 56.

145. Ibid., 294.

146. Ibid., 296.

147. Galloway, The Cosmic Christ; Sittler, 'Called to Unity'; Baker, 'Biblical views of Nature'.

148. This does not exhaust the account of possible interrelationships of ecological theology with other traditional concerns of theology, of course. For example: Roman, Anglican and Orthodox

Chapter Two cont'd.

sacramental theologies accord some spiritual significance to matter such as bread, wine, water, and oil, and it may be possible to extend this and so speak of a 'sacramental' ecological theology; thus Peacocke, Science and the Christian Experiment, chapter 7, esp. 185-188; idem, Creation and the World of Science, chapter VII; Daecke, 'Profane and Sacramental Views of Nature'.

CHAPTER THREE.

1. The bibliographic details for the official reports are found in the bibliography under the abbreviations MIT/1 and MIT/2. Generally, references in these notes to reports and official documents will be given by place and year, and the details may then be found in the bibliography by referring to the place and year.

2. See Figure 1, p.226; see also the Constitution, Nairobi 1975, pp.317ff.

3. For a time-line summary of the Church and Society 'history', see Figure 2, p.227; Duff, The Social Thought of the World Council of Churches, chapter 1, has a full account.

4. Constitution, IV, and IX, in Nairobi 1975, 327-329 and 333 respectively.

5. Nairobi 1975, 303f.

6. MIT/prep., p.5. The full five-year plan proposal is reprinted in the Church and Society house journal, Anticipation No.23., 1976, 29-35.

7. For brevity, I will adopt the abbreviation C&S for 'Church and Society'. The text of the Central Committee's approval of the proposed C&S five-year plan is reprinted in Anticipation 23, 1976, 36, as Appendix II.

8. The preparatory volume for the conference had been titled Faith, Science and the Future, and this title functioned as a brief pseudo-official theme — as shown by the subtitle to the official reports, namely: 'Report of the World Council of Churches' Conference on Faith, Science and the Future'.

9. Amsterdam 1948, 77.

10. Duff, op.cit., 191-222; Oldham, 'a Responsible Society', esp. 138, 143.

11. Oldham, op.cit.

12. Amsterdam 1948, 77f.

13. Loc. cit.

14. Evanston 1954, 113.

15. New Delhi 1961, 99f.

Chapter Three cont'd.

16. '... since Evanston so many new nations have come into being and are in the early stages of establishing political institutions, that more account must be taken of the difficulties which such nations face. We live in a highly dynamic situation with many quite different national experiments' (New Delhi 1961, 100). The Evanston criteria reflected the experience of long-established constitution states, but the New Delhi Assembly faced a very different situation — a mere 7 years later.

17. 'Only a profound dedication to responsible world order ... will be adequate [to the churches' task]' (ibid., 105); see also the discussion there of 'International Institutions', 107.

18. Ibid., 99-101.

19. Geneva 1966, 52, for example; also de Vries' essay on the Report of Section III to the Uppsala Assembly, 'The Background of the Text in Ecumenical Ethics'.

20. Geneva 1966, 52; 'Christian theology must expound and defend the understanding of the "human" as a criterion for judging economic and social change. (This indeed is the purpose of the concept of "the responsible society"...)'; the footnote to that passage stresses the need for the continuing study of the humanum criterion.

21. Uppsala 1968, 202ff; and the address by Berkhof, 'The Finality of Jesus Christ'. Section III had reported that 'The central issue in development is the criteria of the human' (section 20).

22. For a brief history of the Humanum Study, see Lindqvist, Economic Growth and the Quality of Life, 75-77 (referred to hereafter as EGQL). Abrecht's view of the connection between the Humanum study and the work of C&S was stated at the 1969 Central Committee meeting, as follows: 'Dr. Abrecht replied that it was his understanding that the results of the [Futurum] study would be [Church and Society's] contribution to the humanum study. It was [his] Department's job to see that the total study of humanum included this dimension' (Central Committee minutes, quoted EGQL, 76n.253.)

23. See, e.g., Part I of the Report of Section III: 'World Economic and Social Development', Uppsala 1968, 45. On the ideal of 'participation' in the responsible society concept, see New Delhi 1961, 102, 108ff; de Vries, op.cit., 48f; Oldham, op.cit.

24. Oldham, op.cit., 120: 'the crisis of society is at bottom a crisis of man himself'. The question of the humanum has, rightly, been a perennial issue in ecumenical social ethics since Stockholm 1925 and Oxford 1937; see EGQL, 58-62.

25. On the mixed reception of the Humanum study, see EGQL, 75-77, and his chapter IV passim ; also 'Guidelines for Future Programmes', Nairobi 1975, 297-299.

26. Uppsala to Nairobi, 109f; the C&S report to the Uppsala Assembly Uppsala 1968, 240-245, esp. 244f; Geneva 1966, 90 and 190, thus — 'The churches should welcome the development of science and technology as an expression of God's creative work...', 'There is no dispute about the general goal of technological development: a fuller life for every human person'.

27. EGQL, 57.

28. New Delhi 1961, 96f.; Sittler's address to the Assembly, 'Called to Unity'; cf. Geneva 1966, 137-140. The ethical issue was to find appropriate economic systems and structures within the assumption of unlimited potential growth. See also Shinn, 'The Impact of Science and Technology on the Theological Understanding of Social Justice'.

29. Third World participants in the ecumenical discussions, such as S.L. Parmar and M.M. Thomas, had constantly questioned the assumption that economic development was a panacea. This was particularly strong in Geneva 1970, chapters VI and VIII. The first C&S response to the 'limits to growth' thesis is in the Nemi meeting - Nemi 1971, 8f; 12f; see also Shinn,op.cit.,53f.

30. See the scenario prepared by one of the working groups at a Futurum regional consultation (Pont-à-Mousson): 'Scenario - The Nations of the North Atlantic Decrease by 90 percent the Use of Gasoline by Private Automobiles, 1975-1992', Anticipation 15 1973, 19-21.

31. E.g. Bucharest 1974, esp. page 12 which introduces the long term concept of the just and sustainable society, with an awareness of the effects of contemporary human behaviour on future generations.

32. Loc. cit.

33. Ibid., 7. Various C&S conferences in the seventies, according to Lindqvist, used utopian models — EGQL 98 n.66 and the references there.

34. EGQL, 97; Shinn, op.cit., 53; Preston, 'The Question of a Just, Participatory and Sustainable Society', 108f. Several reports were published by the Club of Rome: The Limits to Growth,(1972) Mankind at the Turning Point, (1975), Re-shaping the International Order, (1977), and Goals for Mankind, (1977); see Preston's paper for brief discussion and criticism of the first report.

35. Central Committee minutes, quoted EGQL, 98.

36. The appropriate quotation from the Central Committee Minutes is given in MIT/Prep.,5

37. C.T. Kurien (India), quoted in Preston, op.cit., 111; for other comments, see Barbour, 'Justice, Participation and Sustainability at MIT',384. Kurien's own report of the conference is reprinted in Anticipation 27, 1980, 8-11. See also de Vries, op.cit., 49, and Parmar's foreword to Geneva 1970.

38. Preston, op.cit., 115, for brief discussion.

Chapter Three cont'd.

39. Bucharest 1974, 12; Birch, 'Creation, Technology and Human Survival'. An abbreviated version of Birch's address is reprinted in Anticipation 22, 1976, 6f.

40. Five-year plan, 29.

41. So Abrecht, MIT/2, 1; but since I have been unable to locate the specific reference, this may represent Abrecht's interpretation of the C&S programme directions outlined in Nairobi 1975,303f., and of the recommendations 72 and 73 made there in the Report of Section VI, 138f.

42. So Abrecht, MIT/2,2. The passage quoted does not appear in the body of the report (Jamaica 1979).

43. The MIT conference was expected to shed new light on the issues, as the first chapter of MIT/prep makes clear; according to Barbour, op.cit., 384, it failed to do so.

44. Bucharest 1974,12.

45. Nairobi 1975, 299.

46. Rapid Social Change Study, 1955-1961 (for an account, see EGQL, 50-54); the Futurum project, 1969-1974; the two major conferences are the termini of this study, namely Geneva 1966 and MIT 1979.

47. Quoted EGQL, 58.

48. Oxford 1937, 88: 'The subordination of God's purpose for human life to the demands of the economic process seems in practice to be a tendency common to all existing kinds of economic organisation' - though this produced a rather vague response (89f). See also Potter, 'Science and Technology', 23.

49. Amsterdam 1948, 75.

50. Thessalonica Conference of 1959, quoted EGQL, 53, n.115.

51. EGQL, 54, states that this 'inability to cope' was Abrecht's assessment. Cf. also New Delhi 1961, 96-98, on the theological problematic of nature.

52. This is especially evident in subsection II.D of the C& S report to the Uppsala Assembly, Uppsala 1968, 244f.

53. For a time-line summary of the Futurum project, see Figure 3, p. 228. See also Uppsala to Nairobi, 109-116; EGQL, 77-86; and my next section.

54. Geneva 1970, 55-58, 71-75.

55. Quoted in Geneva 1970, 75; for a similar claim from another working group, see p.67 there.

Chapter Three cont'd.

56. Mostly genetic technology and nuclear engineering, at least in the C&S forum. Cf. the account of the discussion of the five-year moratorium on nuclear development at the MIT conference - MIT/2, section VI, esp.103f; also Barbour, op.cit., 385-387.

57. Quoted EGQL, 78 n.267, p.86. Also 193: 'natural scientists have dominated the dialogue both quantitatively and qualitatively'.

58. Geneva 1970. Cf. the complaint that the public has lost its faith in science and the human spirit, and that scientists have lost their nerve, made in a lecture to the International Atomic Energy Agency, Vienna, 1979: Rabi, 'Government, Science and Technology — Twilight of the Gods'.

59. Nemi 1971, 3.

60. These themes recur in Potter's opening address to the MIT Conference, 'Science and Technology', MIT/1, esp.21f., 25f.

61. Gilkey, 'Technology, History and Liberation'; according to Lindqvist, 'the most thorough theological document of the Futurum project concerning the issues of technology' (EGQL 127, n.113). Gilkey was chairman of this working party.

62. Bucharest 1974, 36. The report lists five areas of particular concern.

63. Mexico City 1975. A number of papers presented at this consultation were reprinted in Anticipation 22, 1976.

64. Nairobi 1975, 129.

65. Anticipation 23, 1976, 29-36, esp. part IV.

66. The conference concerns are listed in MIT/1, 5f, and MIT/2,1f.; see also my section 3(i) below.

67. Abrecht, 'Introduction'.

68. Bucharest 1974, 37, lists the titles and themes of the working groups.

69. Reprinted from Central Committee minutes in Anticipation 19,1974, 43.

70. Nairobi 1975, 303, 129.

71. See Five-Year Plan, produced by the C&S Working Group at its 1976 meeting.

72. MIT/1, 5f.

73. Above, n.8.

74. Uppsala 1968, 244f.

75. Quoted Uppsala to Nairobi, 109.

Chapter Three cont'd.

76. EGQL, 78ff; MIT/2.

77. EGQL, 193.

78. Geneva 1970; Uppsala to Nairobi, 110; EGQL, 79.

79. Nemi 1971; Uppsala to Nairobi, 110f., and the participants named on 113; Shinn, op.cit., 53f.

80. Reports in EcR July 1972, Anticipation Nos.14 and 15 respectively. On the failure of the Futurum project to involve other regions, Abrecht stated at Bucharest that 'For lack of funds and staff and other reasons, similar meetings to those at Accra etc. could not be held in the Middle East, Latin America, and Eastern Europe' (quoted EGQL,80 n.284). The WCC relationship to Latin American Christians has been consistently problematic — EGQL, 55, 71-73, 80 etc.

81. This has been regarded as part of the Futurum project; it appears as such in the brief history of the project given in Anticipation 17, 197., 60f. The report and papers of the C&S presentation are reprinted in Anticipation 11 1972.

82. The report of the Zurich consultation on genetics appeared in Study Encounter X, No.1, January 1974, and the report and papers for the consultation have been compiled and published under the editorship of Birch and Abrecht as Genetics and the Quality of Life. I shall cite it as Genetics 1975, and it is so listed the bibliography; the abbreviation Zurich 1973 refers to the other Zurich meeting and its report, 'A Theological Critique of Scientific Rationality'. The Working Group's statement on population policy is 'Population Policy, Social Justice and the Quality of Life', Study Encounter October 1974, 49ff.

83. Geneva; WCC and World Student Christian Fellowship, 1973.

84. See the debate, 'Rights for Both, Man and Nature?' in Anticipation 16, 1974, 20-36, to which Birch, Cobb, Griffin, Derr and Gregorios contributed.

85. Published under the title The Human Presence. An Orthodox View of Nature.

86. Bucharest 1974; for personal insights, see EGQL, 109ff.

87. See above, section 1 (ii).

88. For a schematic summary of the C&S programme, see Figure 4,p.229 The 'energy' problem has come to dominate the C&S programme, occupying a substantial proportion of recent issues of Anticipation (nos. 23,24,26), second only to theMIT conference.

89. Birch's book refers primarily to the Australian situation.

90. EGQL, Chapter III: Man and Nature.

91. Ibid., 25ff.

Chapter Three cont'd.

92. Ibid., 193; cf. Preston, op.cit., 116f.

93. This is mainly due to the personal enterprise of Paul Abrecht, to whom Gregorios paid tribute at MIT --- quoted by Geyer, 'The EST Complex at MIT', 373.

94. EGQL, 133ff, 191ff., 27f.

95. Ibid., 135 n.147; see also Zagorsk 1968, Mexico City 1975, Cambridge 1978.

96. EGQL, 193, Lindqvist's emphasis; he has the Nairobi Assembly in view. The vexed question of the 'authority' of ecumenical documents is not far from the surface here; see Preston, 'A Breakthrough in Ecumenical Social Ethics?', 25-29, 32-39.

97. Since the Roman Catholic Church is not a member of the World Council, its contribution to WCC affairs and debate is unofficial and undertaken on a 'good will' basis — as in the cooperation between SODEPAX and the Humanum Foundation. Cf. also ECR 24/3 July 1972: Patterns of Relationships Between the Roman Catholic Church and the World Council of Churches.

98. EGQL, 110 n.12. On the place of biblical theology in C&S discussions of social ethics, see Genetics 1975, 203 (quoted below, p.120); Ramsey, Who Speaks For The Church?; Preston, op. cit., 27. Sittler's paper at the 1970 Geneva conference was later published under the title 'Ecological Commitment as Theological Responsibility'.

99. EGQL, 115-119.

100. van Leeuwen, Christianity in World History; Cox, 'The Responsibility of the Christian in a World of Technology'; on Shaull's theology, see Grenholm, Christian Social Ethics in a Revolutionary Age, chapter 6.

101. EGQL, 133.

102. Loc.cit.

103. Lionel Charles Birch is Challis Professor of Biology at the University of Sydney. He has been Chairman of the C&S Working Group since 1976, and was deputy chairman from 1972 to 1975.

104. For expositions, see Birch and Cobb, 'God's Love, Ecological Survival and the Responsiveness of Nature'; Cobb and Griffin, Process Theology; Zurich 1977, part II.B.

105. Zurich 1977 has a subsection expounding the process theology viewpoint, but no single conference report from 1966 to 1979 endorses the process theology stance.

106. EGQL 119-121; 121 n.77 contains an account of Birch's sharp attack on the theological section of the Bucharest report, which Lindqvist interprets as a sign of disappointment and discouragement in the process camp.

107. For bibliography, see EGQL, 122 n.80.

Chapter Three cont'd.

108. Gregorios, op.cit., 84; quoted below, Chapter Four, section 5.

109. Bucharest 1974, 35f. The Orthodox contribution to the Futurum project is summarised in EGQL, 122-124.

110. This coincidence was evident at Bucharest; cf.EGQL,133 n.145.

111. Ibid., 124-129 and 129-132 respectively.

112. Gilkey, op.cit.; Uppsala to Nairobi,109ff.; EGQL, 127ff, and the references given there in n.124.

113. 'The Global Environment, Responsible Choice and Social Justice'; Bucharest 1974, 12; see the discussion in Preston, 'The Question of a Just, Participatory and Sustainable Society', esp.p.115.

114. Pont-à-Mousson 1973, 14f.; Nairobi 1975,125.

115. Bucharest 1974, 35,; cf.EGQL,130f.

116. Whyte, 'The Moral Outlook on Growth'. Outside the C&S ambit, see Darling, 'Man's Responsibility for the Environment', who makes the same point by reference to the 'aristocratic ideal'.

117. EGQL, 132.

118. Ibid., 28.

119. Ibid., 27f.

120. Ibid., 79ff.

121. Ibid., 119, Lindqvist's emphasis.

122. Cobb and Griffin, op.cit., 118.

123. EGQL, 111f, esp. 112 and n.18. there.

124. Grenholm, op.cit., 210ff.

125. Quoted in EGQL, 117n.49.

126. Ibid., 111 n.15.

127. Altner, Schöpfung am Abgrund, 86-119, analyses six types of response appearing in the secular debate about the relation between nature and history. Lindqvist concentrates on the question of history, and divides the theological approaches represented in the C&S programme on the basis of their views of history.

128. Cox, op.cit.; idem, The Secular City. By the 1970 Geneva conference, Cox had adopted a different stance, saying 'I do not believe the future is going to be very secular' (Geneva 1970,84f).

Chapter Three cont'd.

129. EGQL, 111 n.15 and passim.

130. Ibid.,119.

131. Ibid., 111f, 129f.

132. Ibid., 119.

133. Ibid., 116, 118.

134. Ibid., 116.

135. Ibid., 118, 116 n.46. Derr was present, but his theological influence was not pronounced; Gilkey drafted the first part of the report of the theological section.

136. Ibid., 117f.

137. Zurich 1973,7.

138. Gilkey, op.cit.

139. Ibid., 14.

140. Ibid., 18.

141. The emancipatory approach appears at Bucharest, in an African context only: Bucharest 1974, 26.

142. Ibid., 33-35.

143. Ibid., 33.

144. EGQL, 117, defines the 'theology of hope' approach using the four characteristics of that approach listed in Pont-à-Mousson 1973, 15. My definition extends his, and separates the emancipatory and the 'hope' approaches more clearly.

145. This failure is evident in the Report of Section VI (Nairobi 1975, 119-141), especially the section 'Social Responsibility in a Technological Age' (125-129). Birch, 'Creation, Technology, and Human Survival'.

146. See the reports listed above, n.88.

147. The report of the 1978 Cambridge consultation about science appeared in the same issue of Anticipation. The issue was titled, appropriately, Burning Issues.

148. Paulos Gregorios is the ecclesiastical name of Paul Verghese, Metropolitan of New Delhi since 1975.

149. Zurich 1977, 22.

150. Section V has a theological title, but is primarily concerned with the problem of relating theological vision to praxis and ethics.

Chapter Three cont'd.

151. Bucharest was 'home ground' for the Orthodox team, whereas Gregorios was the only Orthodox representative at Zurich.

152. Koch, 'The Old Testament View of Nature', 52. For reaction, see Daecke, 'Profane and Sacramental Views of Nature', which attempts to make Koch into a process theologian (a conclusion not warranted on the sole basis of his Zurich paper).

153. Baker, 'Biblical Views of Nature'.

154. Ibid., 43, on Proverbs 6:6-11, 12:10, 19:15, 28:19, Deuteronomy 22:6, etc.

155. Ibid., 44.

156. Loc.cit.

157. Ibid., 46.

158. Loc. cit.

159. Above, pp.108f.

160. Bucharest 1974, 34. It is worth noting that the C& S Working Group, in its commentary on the 1977 Zurich and 1978 Cambridge consultations, also was influenced by the theology of hope approach; 'Sustainability is the expression of the goodness of creation, of the effectiveness of reconciliation and of the hope of redemption in spite of the power of chaos' ('Commentary',72).

161. Zurich 1977, 32f.

162. Ibid., 39, one of the questions listed for further study.

163. Koch, op.cit., 52.

164. Zurich 1977, 35.

165. Ibid., 24, includes two sentences (one from Koch, op.cit., 50, on the nephesh, and one from Baker, op.cit.,43) side by side in the exposition of the 'process' part of the report(II.B).

166. This is clear from the editor's introductions to Anticipation Nos. 25 and 26.

167. Since World Council constraints of finance and staffing force C&S to give theology second place to social ethics, it would be unfair to criticise the theological inadequacies of the C&S programme too rigorously or unconstructively.

168. Zurich 1973, 7; the report's emphasis.

169. Bucharest 1974, 36.

170. Loc. cit.

171. E.g. Birch, 'Creation, Technology and Human Survival',Nairobi 1975, 129.

Chapter Three cont'd.

172. 'God in Nature and History'; the New Delhi Assembly had, however, called for the development of a 'theology of nature' (New Delhi 1961, 96).

173. Chapter One, section 2.

174. EGQL, 115.

175. 'Global Environment, Responsible Choice and Social Justice',442.

176. Zurich 1977, III.C; cf. Sittler, 'Called to Unity'.

177. This claim is assessed in Chapter Four, section 4 below.

178. Baker, op.cit., 46.

179. EGQL, 193.

180. Ibid., 28; and my discussion above, p.104.

181. Ibid., 185, 135 n.147; cf. also Geneva 1970,87.

182. Bucharest 1974, 12. By contrast, see the response to the biological evidence about human evolutionary history in the theological section of the same report, 35f.

183. Above, p.87.

184. Zagorsk 1968; EGQL, 68f, 192.

185. EGQL, 192f., Lindqvist's emphasis.

186. E.g. Zurich 1977, III.D: 'Eschatology and Futurology'.

187. 'Human Development ... ... (Fifth Assembly of the WCC, Notes for Section VI)', part 2; Nairobi 1975, 125, 138f.

188. Gilkey, op. cit., is one such 'isolated instance'. For a survey of the C&S discussion of technology, see EGQL, 124-129.

189. Zurich 1977, 39 (Question 2(b)).

190. Genetics 1975, 203; quoted also in Uppsala to Nairobi, 111, and in Birch, op.cit., 76. For more moderate statement see MIT/2,153.

191. MIT/2, 2; Geneva 1970, 28f. The need for specialised information was recognised at the 1966 Geneva conference — Geneva 1966,8f,38ff.

192. EGQL, 110 and n.12 there; also my n.98 above.

193. Birch and Cobb, 'God's Love, Ecological Survival and the Responsiveness of Nature', 32: 'It is our judgment that the dominant view of nature in Western Christendom ... is gravely deficient both as an interpretation of biblical views of the creation and as a basis for an adequate contemporary ethics of ecology'.

Chapter Three cont'd.

194. The main sources are, of course, the volumes MIT/prep, MIT/1 and MIT/2.

195. Bucharest 1974,12; Nairobi 1975,303.

196. Five-Year Plan, 29-36.

197. Five-Year Plan, Appendix II, reprints . . . this endorsement.

198. Central Committee minutes, quoted MIT/1,14.

199. Cf. the almost identical mandate for the 1966 Geneva conference, reprinted in Geneva 1966, 8ff.; that conference started the tradition of 'advisory' conferences.

200. Three lists of conference concerns are given in the sources: MIT/prep., 5f.; MIT/1,5f.(Roger Shinn); and MIT/2,1f (Paul Abrecht). All agree on the need to gather scientific information.

201. Five-Year Plan, Appendix II. The 1966 Geneva conference had too many social scientists (Geneva 1966, 39; Shinn, op.cit., 52.; EGQL,77f); the Futurum project had too many natural scientists (EGQL, 193). Theoretically, this recommendation from the Central Committee restores the balance, but in practice MIT turned out differently (Barbour, op.cit., 381f.; Preston op.cit., 116).

202. Barbour, loc. cit.; Preston, loc.cit. In the preparatory materials for the conference, 60 of the 236 pages of the MIT/prep. were devoted specifically to issues of economics and government; but in the two numbers of Anticipation Nos.25 and 26) which also served as preparatory material, there was only one item of interest to social scientists, namely the report of the consultation on political economy, ethics, and theology (Zurich 1978).

203. EGQL, 193.

204. MIT/2, 2f.

205. The conference programme is reprinted in MIT/1, 383-386.

206. The reports are reprinted in MIT/2.

207. MIT/2, 147-165; see also Abrecht's comment, MIT/2,4.

208. Reprinted in'Science and Technology for a new International Economic Order', 41f.

209. Geyer, op.cit.; Barbour, op.cit.; Dumas 'When Science Looks to Faith'; Jensen, 'The MIT Conference'.

210. Geyer, op.cit., 376. The whole sentence was italicised.

211. Ibid., 374.

212. Jensen, op.cit., 394.

Chapter Three cont'd.

213. Geyer, op.cit., 375.

214. MIT/1,15.

215. MIT/2,4.

216. Abrecht, 'Response to the Conference', 3,4.

217. MIT/1,68.

218. Cf. Gregorios, The Human Presence 86f., for his statement about the need for a reverent-receptive attitude to nature. Birch is, I believe, following Gregorios' lead. See my Chapter Four, section 4, p.187.

219. Galtung is a Norwegian, presently working in Geneva for the Institute For the Study of Development, and the author of several books about peace, development, and social justice.

220. MIT/1,79.

221. Borovoy was a participant at the 1966 Geneva conference, and represented the Russian Orthodox Church at the Uppsala and Nairobi Assemblies.

222. Nicolay Fedorov, 1828-1903. One of Fedorov's essays has been translated, and reprinted in Schmemann's anthology Ultimate Questions. Schmemann says that Federov 'remains a controversial figure, heretical to some, deeply Orthodox to others', and includes him in his anthology only so that he may be judged on his own terms (173f). So Borovoy's enthusiasm for Federov must be assessed with charity and wisdom.

223. MIT/1,81.

224. Loc.cit.

225. Ibid., 82.

226. Ibid., 83.

227. Ibid., 84.

228. Loc. cit.

229. Ibid., 84f., Fedorov believed that'technology, if used by a humanity united in brotherhood, can perform miracles, can even raise the dead'(p.85).

230. Ibid., 85.

231. My discussion of Gregorios' stance is found in Chapter Four, section 5.

232. MIT/1, 86f; this is one of a number of editorial interpolations which help to place the conference addresses into the context of the conference process; see Roger Shinn's statement, MIT/1, xiii. In the conference reports themselves, the only passage dealing with the pertinence of scripture to contemporary ethical discussion is found in Section X(MIT/2,153).

Chapter Three cont'd.

233. MIT/2,28-38.

234. Section 2 (v) above.

235. MIT/2, 36f.

236. Ibid., 36.

237. Ibid., 1.

238. On the rejection of Orthodoxy, see p.136 below. There is a Third World codicil at the foot of p.33 of the Section II report, very muted.

239. Jensen, op.cit., 395ff. Cf. Kurien, 'The Debate about Growth and Sustainability at MIT',8: 'The mood was that of wealthy, stable and compassionate societies of the West trying to support the poor, struggling nations of Asia, Africa, and Latin America'.

240. MIT/2,32f.; cf. Zurich 1977, III.D.

241. E.g. Section VI, and the debate on the nuclear moratorium; see MIT/2, 88-104, and Barbour, op.cit., 385-387.

242. Geyer, op.cit., 375; quoted above, p.126.

243. MIT/2,32.

244. Ibid., 7-27.

245. Ibid., 33, the report's emphasis.

246. Ibid., 34.

247. Ibid., 31 (vii),34.

248. Ibid., 32f.

249. Ibid.,.34.

250. Ibid., 29.

251. Ibid., 31(x).

252. Ibid., 33; quoted above, p.135.

253. Ibid., 32(xii); this may be compared with Liedke, Im Bauch des Fisches, 200f: 'die einfache Mahlzeit als ökologische Symbolhandlung'.

254. Gregorios, op.cit., 85-89; Khalil, 'The Ecological Crisis',205ff; Schmemann, The World as Sacrament, esp. chapter 2.

255. Zurich 1977, II.D.

256. MIT/2,30.

257. Ibid., 34,32.

Chapter Three cont'd.

258. Ibid., 28.

259. Birch, 'Nature, Humanity and God in Ecological Perspective', 68.

259a. Cf. Birch and Cobb, 'God's Love, Ecological Survival of the Responsiveness of Nature', 34: 'The task ahead calls for a radical reinterpretation of the man-nature-God relationship that has dominated Western Christianity over recent centuries and which is not adequate to meet the task of the 20th Century'.

260. MIT/2, 36.

261. Geyer, op.cit., 375; quoted above, p.126.

262 MIT/2, 147-165. The theology is concentrated on 153, and 161ff.

263 Ibid., 149.

264. Ibid., 161.

265. Ibid., 161f.; cf. Gregorios, op.cit., 66-71.

CHAPTER FOUR

1. Niehbuhr, Christ and Culture:published 1951, delivered as a series of lectures in 1949.

2. A variety of responses was already evident at the first big conference of the Futurum project, at Geneva in 1970. See Geneva 1970, 75-79, which quotes extensively from a working group report listing five views represented in its own membership.

3. Niebuhr, op.cit., 32.

4. Ibid., 32-39.

5. See Chapter One, section 1; also Carson, Silent Spring; Ward and Dubos, Only One Earth.

6. Geneva 1966, 66-80. This theme recurs constantly throughout the C&S discussions; see EGQL, chapter II; M IT/1, 154-169.

7. Geneva 1980, 78.

8. Niebuhr, op.cit., chapter 2.

9. In an interview with David Gill in Geneva, Lynn White described Jacques Ellul's position as a 'curious revived demonism: maybe God is dead, but Satan is alive and Satan's name is Technology! ... and one of the things that made me happiest while skimming over the reports of your Working Committee (Nemi, June 1971) is that I could find no reflection of the Jacques Ellul position'. White, 'Snake Nests and Icons', 35.

10. Marcuse's book was part of a general post-1960 criticism of science, technology, and empiricism — see Macquarrie, Twentieth Century Religious Thought, 381-384. For an amusing account of Roszak's only contribution to the C&S programme, see Derr, Ecology and Human Liberation, 42f.

Chapter Four cont'd.

11. Macquarrie, op.cit., 383.

12. Niebuhr, op.cit., chapter 3.

13. Ibid, 117.

14. Ibid, 116-120 describes the general theology of the median.

15. Ibid., chapter 4.

16. Ibid, chapter 5.

17. Ibid., 190-196 esp.

18. EGQL, 111 n.15, quoting Berkhof, 'God in Nature and History', 157; see also my discussion above, Chapter Three, section 2(iii).

19. EGQL, 114.

20. The Faith and Order document is printed in Faith and Order Studies 1964-1967, 7-31.

21. Derr refers to Berkhof's study and to the Faith and Order study several times, with approval. His own thesis is that 'the historicisation of nature [and its] desacralisation turn out to be useful and even necessary in meeting the environmental challenge' (p.45), which shows his affinity with Berkhof's stance.

22. Berkhof, op.cit., 143.

23. Ibid., 144.

24. Loc. cit.

25. Ibid., 143f.

26. Ibid., 143.

27. Ibid., 158.

28. Loc. cit.

29 Ibid., 157-159; see also 151f.

30. Ibid., 153.

31. Ibid., 149-151.

32. Ibid., 150.

33. Ibid., 151.

34. Ibid., 150.

35. Ibid., 143; also 152.

36. Ibid., 148.

Chapter Four cont'd.

37. Ibid., 150.

38. Loc. cit.

39. Ibid., 154.

40. Loc. cit.

41. Ibid., 154f.

42. Ibid., 155.

43. Loc. cit.

44. Loc. cit.

45. Ibid., 154,155.

46. Ibid., 159f.

47. Derr, op.cit., 86.

48. Ibid., 97, following the discussion on from p.92.

49. Ibid., 97.

50. Ibid., chapter 6, 69-86.

51. Ibid., 74.

52. Ibid., 73; see also 75ff.

53. Ibid., 81f.

54. Ibid., chapter 7, 87-109.

55. Ibid., 104.

56. Ibid., 108. In India, 'the children born in the next few decades will have almost no chance for a normal healthy life' (p.107).

57. Ibid., 103.

58. Ibid., 53, Derr's emphasis.

59. Ibid., 52.

60. Ibid., 52,53.

61. Ibid.,50; see also chapters 2 and 3 generally, and his conclusion pp.43-45.

62. Niebuhr, op.cit., 145.

63. Derr, op.cit., 11, 52.

64. Ibid., 10.

Chapter Four cont'd.

65. Ibid., chapters 5 and 7; 'When the care of nature is understood to be for man's survival and betterment, the order of priorities is straight' (p.60).

66. Ibid., 49.

67. Ibid., 51-57.

68. Berkhof, op.cit., 151-153.

69. Ibid., 154; Derr, op.cit., 51-57

70. Discourse on the Method, Part Six; in Hollis (ed.) The Light of Reason, 83.

71. Derr, op.cit., 47.

72. Valerius Terminus or The Interpretation of Nature, published 1603; quoted by Passmore, Man's Responsibility for Nature, 19.

73. Passmore, op.cit., 19: Bacon's attitude was 'heretical in a manner that was essential if Christianity was to be reconciled with technological optimism'.

74. Loc.cit.: 'Only in so far as they rejected the view that man is essentially depraved could Bacon and his successors find ground for optimism in their conviction that through science man could greatly extend his power over the world'.

75. Derr, op.cit., 60.

76. Geneva 1970, 75-79.

77. Colossians 1:15, Hebrews 1:3, 2:5-9; etc. Berkhof op.cit., 154. See also Clines, 'The Image of God in Man', 102f.

78. So Steck, World and Environment, 198-203: Wiltsher, 'The Biblical Teaching on Creation', chapter 5.

79. Derr, op.cit., 54, Derr's emphasis.

80. cf. Niebuhr, op.cit., 145.

81. Berkhof, op.cit., 150.

82. There are surveys of the interpretations of the image concept in Barth, CD III . 1, 192ff., and Clines, op.cit., 51ff.

83. Barr, 'The Image of God in the Book of Genesis'; idem, 'Man and Nature'; Sawyer, 'The Meaning of בְּצֶלֶם אֱלֹהִים'

84. Sawyer, op.cit., 426.

85. Zurich 1973; Gilkey, 'Technology, History and Liberation'.

86. Bucharest 1974, 33-35, is based on Gilkey's draft; see also my Chapter Three, section 2.

87. Baker, 'Biblical Views of Nature'; Liedke, 'Solidarity in Conflict'; Gilkey, op.cit.

Chapter Four cont'd.

88. One difference between Moltmann and the C&S theology of hope may be alluded to: for Moltmann's approach, God is necessarily the suffering God, whereas the C&S theology of hope makes no reference to the passibility or impassibility of God.

89. Liedke, Im Bauch des Fisches, 71-80.

90. Ibid., 21-25.

91. Ibid., 63-70; above, section 2(iii).

92. Ibid., 109ff. Liedke's ecological exegesis is built on the theological foundation laid by Barth and Westermann and discussed above in Chapter Two, sections 3(ii) and 4(iii).

93. Ibid., 130-141; Baker, op.cit., 42f.

94. Liedke, op.cit., 161-164, 153-156; Baker, op.cit., 45f.

95. Baker, op.cit., 45; Liedke op cit., 160.

96. Liedke, op.cit., 108.

97. Ibid., 27, 152; Gilkey, op.cit., 14.

98. Baker, op.cit., 44; Liedke, op.cit., 29ff.

99. Liedke, op.cit., 177; cf. the interpretation of Phillipians 2:7ff.

100. Ibid., 31.

101. Ibid., 108.

102. Ibid., 150-152.

103. Liedke., 'Solidarity in Conflict',76; Im Bauch des Fisches, 132-141.

104. Ibid., 25-34; Baker op.cit. 44.

105 Liedke, op.cit., 138. 'Ein Segen, der in solchem Umfang die außermenschliche Schöpfung zerstört, daß der Mensch ... nur als satanisch-zerstörendes Wesen von der außermenschlichen Schöpfung empfunden werden kann, kann nicht der Segen der Schöpfung sein, wie Gott ihn gemeint hat (p.139).

106. Ibid., 172.

107. Baker, op.cit., 46.

108. Gilkey, op.cit., 14.

109. Baker, op.cit., 44. 46; the biblical testimony implies that the whole universe is in 'essential harmony' with God as revealed in Jesus 'and that therefore there must be some modus vivendi between man and nature which, even if not yet attained, is in keeping with all that is best in both' (p.46).

110. Gilkey, op.cit., 14: Baker, op.cit., 44, 46; Liedke, op.cit., 17, 85.

111. Liedke, 'Solidarity in Conflict', 74.

Chapter Four cont'd.

112. Baker, op.cit., 40f.

113. Liedke, Im Bauch des Fisches, 109.

114. Ibid., 109-152.

115. It is not appropriate for me to engage in extensive and detailed criticism of Liedke's approach in the body of my text, except as representative of the C&S theology of hope. I believe that Im Bauch des Fisches fails on two counts. First, the 'conflict' motif is imported from elsewhere, though Liedke implies that the existence of conflict between man and nature is a conclusion of ecological exegesis. Second, his use of a sociological theory of conflict amelioration between human partners cannot be extended simpliciter and used to provide a strategy for conflict amelioration when one of the partners is not human. See also (iii) below.

116. Bucharest 1974, 33f.

117. For examples, see Derr, op.cit., 50,57 etc.,; Liedke op.cit., 13-19; and the referencesthey contain. On the philosophical side, see Macquarrie, op.cit., 380-385.

118. Liedke, op.cit., 161-164, 180f; 'Solidarity in Conflict',74.

119. Baker, op.cit., 44.

120. Liedke, op.cit., 78f, gives a brief account.

121. Liedke, Im Bauch des Fisches, 109-152.

123. Above, Chapter One, section 3(iii).

124. Zurich 1977, 34.

125. Ibid., 35.

127. The debate is listed in the bibliography, No.2, under the general heading 'Rights for Both, Man and Nature?' Cobb's contribution was titled 'The Christian Concern for the Non-Human World'; Griffin's, 'Human Liberation and the Reverence for Nature'. The passages to which the process theologians took exception are in Derr, op.cit., 25-28, 37-39. The ensuing debate included two responses by Derr. In fact, the debate was a theological version of the Passmore-Routley debate, described above, pages 9 and 10.

128. Birch and Cobb, 'God's Love, Ecological Survival and the Responsiveness of Nature'.

129. Hartshorne, 'God and Nature'. He did not even state the process case convincingly, but spoke at length of the mistakes traditional 'religion' had made (e.g. with regard to birth control and the oppression of women) and the need to rectify them by adopting a new world view. Coming from a very astute logician, this approach is incredible.

Chapter Four cont'd.

130. The Nairobi Address is 'Creation, Technology and Human Survival'; a condensed version appeared in Anticipation 22, 1976, 6f. The MIT paper was 'Nature, Humanity and God in Ecological Perspective'. A bibliography of Birch's contributions to the C&S programme, to 1974, is given in EGQL,203.

131. E.g. Birch, Confronting the Future. His basic thesis there is 'that a fundamental transformation needs to take place in Western culture and in those developing countries which are embracing the same values' (p.24); and he interprets the sustainable society as the social analogue of the ecological community in biology (pp.37-41).

132. ..... London: SCM Press, 1965. The two articles are 'Participatory Evolution: The Drive of Creation', and 'Purpose in the Universe: A Search for Wholeness'.

133. Nature and God,10: Birch, 'The Organic Image of Nature, Humanity and God', 56.

134. Birch, 'What Does God Do in the World?', 44. The 'colleagues' include 'two of the most distinguished evolutionary biologists of this century', namely Sewall Wright and C.H. Waddington. On the effect of metaphysical beliefs on scientific research, see Waddington's autobiographical account in Towards a Theoretical Biology, 2: Sketches.

135. Birch, 'Participatory Evolution', 157f. 'The Organic Image', 55; Nature and God, chapter 3: Chance and Purpose. On the concept of teleonomy in biology, and its differentiation from teleology and vitalism, see Waddington, op.cit., and the extensive discussion therein conducted by David Bohm, Marjorie Grene, and J.Maynard Smith; and in volume 1: Prolegomena, see Waddington's defence of his choice of the term 'chreod', 14f.

136. Birch, 'Participatory Evolution',157.

137. Ibid., 156-159; this is a recurring theme in Birch's process theology.

138. Ibid., 160.

139. Nature and God, chapter 5: The Meaning of Creation.

140. Cobb and Griffin, Process Theology, chapter 7: Eschatology. Cf. Moltmann, 'Creation as an Open System', which gives a similar description of the world's future (above, Chapter One, section 3 (iii)), from a different theological perspective.

141. Birch, 'Participatory Evolution', 153.

142. Ibid., 151-154.

143. Ibid., 154.

144. Birch, 'Nature, Humanity and God', 65-67. Cf. Gregorios, The Human Presence, chapter VII: Mastery and Mystery.

Chapter Four cont'd.

145. Birch, op.cit., 65-67.

146. Birch, 'What Does God Do in the World?', 43,41f.

147. Ibid., 44.

148. Birch, 'Nature, Humanity and God', 62, 64, 70; this view is expounded at length throughout Nature and God.

149. Birch, 'Nature, Humanity and God', 68.

150. Birch, 'Organic Image', 53.

151. Birch, 'Creation, Technology, and Human Survival', 76.

152. Birch, 'Nature, Humanity and God', 72f.

153. Birch, 'Participatory Evolution', 153.

154. Birch, 'Nature, Humanity and God', 71.

155. Birch, 'Participatory Evolution', 159; 'Nature, Humanity and God', 71.

156. Griffin, op.cit., 29 n.9. See also Gunton, 'The Knowledge of God According to Two Process Theologians'; idem, Becoming and Being; etc. See also the references in Chapter Two, n.109 and the references there.

157. Niebuhr, op.cit., 110,115.

158. Birch and Cobb, op.cit., 32.

159. Birch, 'Organic Image', 57.

160. Gerald Durrell, The Bafut Beagles, concludes with Durrell showing some recently captured wild specimens to a sceptic who believed that the 'wild' state was better and preferable for animals than captivity and human influence. Durrell emphasised the existence of parasites on and diseases in the wild animals, then set to treating them, to the sceptic's chagrin.

161. Birch 'Nature, Humanity and God', 68.

162. Birch, 'What Does God Do in the World?', 44.

163. Birch, 'Nature, Humanity and God', 71.

164. Loc.cit.

165. Chapter Two, section 4(ii) above; Cobb, God and the World, Chapter 6: Is Christian Theology Still Possible?

166. So Steck, op.cit., 165-173.

167. Birch, 'What Does God Do in the World?',44.

Chapter Four cont'd.

168. Birch, 'Nature,Humanity and God', 71; Nature and God, 115-117.

169. Birch, 'Nature,Humanity and God', 67.

170. Niebuhr, op.cit., 114f.

171. I believe that Steck, op.cit., presents a viable alternative approach.

172. Birch and Cobb, op.cit., 32.

173. For bibliography of Gregorios' contributions to the Futurum project, see EGQL, 122 n.80. The name Paulos Gregorios is his ecclesiastical name as the Syrian Orthodox Metropolitan of New Delhi. Prior to 1975, his contributions to the C&S programme were over the name Paul Verghese.

174. The conference officers are listed in MIT/2, 195f. Gregorios' Bible studies are reprinted in MIT/1,118,378f. His paper to the Conference was titled 'Science and Faith: Complementary or Contradictory?'

175. Cross and Livingstone, Oxford Dictionary of the Christian Church, articles 'Orthodox Church' and 'Syrian Orthodox'.

176. Gregorios, 'An Eastern Orthodox Perspective of Nature, Man and God', 64. For genuinely Orthodox responses to some of the issues of the environmental crisis, see Khalil, 'The Ecological Crisis: An Eastern Christian Perspective'; Pančovski, 'Die Bezogenheit der Erlösung auf die Schöpfung nach orthodoxem Verständnis', Zizioulas, 'Human Capacity and Incapacity'; Schmemann, The World as Sacrament ; on Maximus the Confessor in particular, see Thunberg, Microcosm and Mediator.

177. Geneva: WCC,1978.

178. Reprinted in Preston, Technology and Social Justice, 187-201. and Anticipation 25,1979, 64-68, respectively.

179. Gregorios, The Human Presence, chapter IV, for example, where the thought of Whitehead and Teilhard de Chardin serve to introduce that of Gregory of Nyssa; cf. EGQL,133 n.145, where Lindqvist's focus on the theology of history causes him to narrow the distance between Birch's and Gregorios' positions.

180. Gregorios, Human Presence, 23,27.

181. Ibid., 19,63.

182. Ibid., 84.

183. Loc. cit.

184. This has been adapted from Balas, Metousia Theou,50. Chapter 1 (23-53) elucidates and interprets Gregory's ontology.

185. Gregorios, 'An Eastern Orthodox Perspective',68.

Chapter Four cont'd.

186. Gregorios, Human Presence, 85.

187. Ibid., 65f., 80f., 85-89; 'An Eastern Orthodox Perspective', passim.

188. Gregorios, Human Presence, 65f.

188a. Balas, op.cit., examines this concept and its importance for Gregory's thought; I believe it may prove serviceable in ecological theology.

189. Gregorios, 'An Eastern Orthodox Perspective', 67 n.5., quoting On the Soul and the Resurrection.

190. Balas, op.cit., 72-75. Gregorios, Human Prescence, 62f.

191. Balas, loc.cit. For Gregory, evil is the privation of the good and the falling away from participation in the good; thus Gregory follows the neo-Platonists.

192. Gregory has borrowed this serviceable concept of the ontological diastēma from Athanasius. See also Gregorios, Human Presence 60-62, and the references there.

193. Ibid., 68-70.

194. Ibid., 70f.

195. Ibid., 70; also p.81, with the extended quotation from Olivier Clément.

196. Ibid., 71,89.

197. von Rad, Wisdom in the Old Testament, 73.

198. Gregorios, Human Presence, 86.

199. Ibid., 89.

199a. See Wace and Schaff, 'ΕΠΙΝΟΙΑ', in A Select Library of Nicene and Post-Nicene Fathers, V: Gregory of Nyssa, p.249.

200. Gregorios, 'An Eastern Orthodox Perspective', 64.

201. Gregorios, Human Presence, 71; cf.60 also.

202. Ibid.,63, and chapter II.

203. Gregorios, 'This World and the Other', 193.

204. Gregorios, Human Presence, 63.

205. Ibid., 21.

206. Above, section 4.

207. Gregorios, Human Presence, 67.

Chapter Four cont'd

208. Ibid., 8; cf. 'This World and the Other', 195-200.

209. This happens in Gregory of Nyssa's thought as well, in a different way. He is weak on eschatology because he focusses on growth in metousia , and on the continuity between this world and the next when metousia will be unencumbered. Balas, op.cit., 157f.

210. Ibid., 72-75. The passage in 'On the Making of Man', chapter XII, which Balas discusses there, is unique in Gregory's thought. See also Gregorios, Human Presence, 65.

211. Gregorios, Human Presence, 65,85.

212. Gregorios, This World and the Other', 198. Gregorios quotes Gregory, 'On the Making of Man', VIII. 2: 'The hands cooperate with bidding of reason'.

213. Gregorios, Human Presence, 89.

214. Gregorios, 'An Eastern Orthodox Perspective'. 67.

215. Gregorios, Human Presence, 64, following the discussion on pp.62-64.

216. On the study of science and medicine by the Greek Fathers, see the first two chapters of Wallace-Hadrill, The Greek Patristic View of Nature.

217. Birch, Nature and God, 77f. Birch quotes Whitehead: 'The world lives by its incarnation of God in itself'.

218. Balas, op.cit., 138 n.104 and the references there: Gregorios op.cit., 60-62.

219. Gregory's argument against Eunomius' Second Book is that the epinoetic operation in human thought is capable of supplying terms for the Deity (Ἀγέννητος , 'ungenerate', being the particular term in question), though with relative and qualified accuracy; Wace and Schaff, loc.cit.

220. This is exactly what Gregorios does in 'This World and the Other' — see the quotations above my n.212.

221. Gregorios, Human Presence, 7-9.

222. Ibid., 8.

223. Ibid., 66.

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1. Official documents, conferences and reports, in chronological order.
2. Contributions to ongoing programmes.
3. Works about the World Council of Churches.
4. Theology.
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