HUMAN FREEDOM AND THE LOGIC OF EVIL

PROLEGOMENON TO A CHRISTIAN THEOLOGY OF EVIL

RICHARD WORSLEY

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Prolegomenon to a Christian Theology of Evil

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In loving memory
of my parents Jack and Kathleen Worsley

Part I
The Problem of Evil

1

Introduction

At the opening of *Paradise Lost*, John Milton prays

> That to the highth of this great argument
> I may assert Eternal Providence,
> And justify the ways of God to men.[1]

Theodicy is the attempt to resolve the problem of faith in God in the face of the existence of evil. Milton rightly intuits that the traditional, Christian theodicist is an apologist, who aims to 'justify the ways of God to man'. Theodicy faces up to a range of implicit objections to faith. There is rage, protest, hurt. Such affective reactions may accompany an intellectual rejection of the possibility of belief.

Much of the theodicy debate has focused upon these intellectual objections. Its *locus classicus* is the writings of David Hume:

> Why is there any misery at all in the world? Not by chance, surely. From some cause then. Is it from the intention of the Deity? But he is perfectly benevolent. Is it contrary to his intention? But he is almighty.[2]

Hume's argument is often reduced to the form of a syllogism:

1. God is omnipotent, omniscient and wholly good.
2. Evil exists.
3. Therefore, either God does not exist or he lacks one of the attributes of clause one.

The summary of modern thought on the problem of evil in Kenneth Surin's (1986) book *Theology and the Problem of Evil* makes it clear that one of the major questions facing the theodicist is the validity of any intellectual approach to the problem of evil. Even if the Humean syllogism could be soundly defeated, it is argued, this does little for man's appreciation of the ways of God. There

remains anger and pain; indignation and rejection and faithlessness. Such is the position of Dostoevsky's Ivan Karamazov, who points out to Alyosha that he radically refuses to be associated with a God who permits gross suffering:

> Why should they [suffering children], too, be used as dung for someone's future harmony? . . . We cannot afford to pay so much for admission. And therefore I hasten to return my ticket of admission . . . It's not God that I do not accept, Alyosha. I merely most respectfully return him the ticket.[3]

This book stands broadly within the Humean tradition. I put forward a modified, free-will approach to the theology of evil. However, this is no theodicy. Theodicy in its strict sense is a lost cause, to the extent that it fails to take account of the affective and practical reactions to evil. It is mere intellectual argument. Christian believing requires a theology of evil which is multifaceted, sensitive both to the resources of faith and to the detailed structure of reality. So-called intellectual solutions to the problem of evil can in fact only act as a prolegomenon to a full, theological treatment of this facet of human experience.

This book is such a prolegomenon. I shall put forward a schema which relates human freedom to the process of creation and thence to evil. I examine the status of the argument that this relationship is logically necessary.

I shall argue that evil happens to exist because it is necessarily possible. Human freedom requires that the physical world which is the substratum of that very freedom should be itself radically free. The freedom of all creation is necessary to human freedom. Thus, if there is to be human freedom, there must be the possibility of evil.

This approach establishes one aspect of the relationship between God and the created order. It is concerned with ways in which God is logically precluded from involvement with the world. It does not deal with the positive claims about how God is indeed involved with the world. This is the realm of a theology of evil proper. Yet, such a theology can only emerge on the basis of a prolegomenon which sets the logical limits of divine activity or, rather, the logical limits to what we might imagine that God ought to have done. Such an account might be called a free-process theology of evil.

I am indebted for the phrase 'free process' to John Polkinghorne (1989):

> I think the only possible solution [to the question of evil] lies in a variation of the free-will defence, applied to the whole of the created world. One might call it the 'free-process defence'. In his great act of creation I believe that God allows the physical world to be itself, not in Manichaean opposition to him, but in that independence which is Love's gift of freedom to the beloved.[4]

Not only is his notion of free-process theodicy valuable as a crisp description of my own general position about the logical relationship of God to the created order, but he also indicates the need for a theological justification of the very existence of that free process.

His own case – that free process is love's gift to the beloved – is either inadequate or too briefly stated. Why is natural free process a gift in itself? Is it perhaps a means to another end? Is it a *necessary* condition of that other end?

My case is that it is within the nature of God to create free creatures who are free in such a sense that they may enter into a loving mutuality with each other and their creator; in this, free process is a necessary means to an end.

It is no part of this book to argue for the truth of such theological presuppositions about the nature and purposes of God. Detailed, logical arguments often need to specify *ex hypothesi* their starting points. The remainder of this chapter examines a number of starting points, which I adopt, for the argument that the possibility of natural evil is necessary to human freedom.

A CRITICAL–REALIST DEFINITION OF GOD

The use of the word God has been hotly disputed between realist and non-realist in the present century. This debate is well summarised by John Hick (1988). A realist use of the word God posits a God who

> is a reality *a se* whose existence accordingly does not consist simply in being conceived or imagined by human beings.[5]

Within this definition there may exist a whole range of precise meanings. However, it is clear that, within the Humean tradition of theodicy, God must be such that it is coherent to talk of his acting or doing, either within the fabric of creation or in the initial act of

creation or both. In any other case, there can be no problem about his doing otherwise than he did. The atheologian's accusation that God could have made a better, a less evil, world presupposes a God who can make or act, While there are manifest problems in the language of divine action, this book must adopt *ex hypothesi* a realist definition of God. Such God talk is at the heart of theodicy.

THE GOD OF ABRAHAM, ISAAC AND JACOB

Critical realism is not by itself an adequate religious definition of God. The argument that the possibility of evil is justified by its being necessary for creaturely freedom presumes that creaturely freedom is religiously worthwhile. It is better to have both freedom and evil than neither. This basic stance of faith is non-rational. The quality of *mysterium tremens* which accompanies a truly human experiencing of evil involves, at least for the theist, an act of basic trust that freedom – creation as we know it – is infinitely preferable to non-existence.

Translated into religious language, the free-will tradition needs to assert, in this case *ex hypothesi*, that it is part of God's loving nature and purpose to create free beings.

THE INITIAL FOCUS ON NATURAL EVIL

Human evil is more interesting than natural evil; the former touches more closely upon our ethical, personal and social concerns. This is especially so in the light of academic theology's concern with the Holocaust. However, I focus upon natural evil in the first instance in the belief that it is the more basic category. This claim needs some explanation.

Human evil is that which is destructive of creation's worth and is perpetrated by the free action of women and men, either individually or corporately. Natural evil is that destructiveness which flows from all phenomena which are not to do with free, human action. (This definition is very imprecise; it serves only as a working hypothesis. It may even turn out to embody a wholly false dichotomy between human and natural evil.)

If human evil is truly distinct from natural evil, then it is so because it stems from free, human action, which in turn is qualita-

tively different from any other happening. This is the usual distinction between an act and an event. The distinction is problematical. For some, there is no such qualitatively distinct thing as a freely willed action. For others, there is both an ethical and ontological distinction between act and event.

To focus initially upon human evil would be to commit oneself to developing an account of the nature of free-will which is adequate to maintaining the basic distinction between act and event. By beginning with natural evil, it is possible to argue either that the mechanisms behind natural evil are also sufficient to account for human evil or to specify the *tertium quid* by which human evil is to be distinguished from its natural counterpart. In the first two parts of this book, I will confine my argument wholly to natural evil. In Part III I will examine a mode of extending this argument to the realm of human evil without having to take a particular stance upon the ontology of human freedom.

ON BEGINNING WITH ALVIN PLANTINGA

Chapter 3 of this work will offer a critique of Plantinga's free-will defence. Such is my disagreement with Plantinga that it is useful to outline now the reason why his work is an appropriate point of departure, other than its present pre-eminence in the free-will tradition of theodicy in the English-speaking world.

Plantinga's free-will defence argues that all evil is necessarily possible in view of God's commitment to create free beings. I call this the holistic approach. It is contrasted with the atomistic approach to be found in John Hick (1978), for example. In the latter approach, each individual instance of evil would need to be justified separately. The holistic approach is all-or-nothing. If Plantinga is right, then his argument accounts for every example of evil. If Hick's vale of soul-making theodicy could be shown to be right in principle, it would still not be clear why any particular instance of evil should be justified by it.

My own approach is, like Plantinga's, holistic. To this extent, it owes a great deal to Plantinga's thought, from which it otherwise largely dissents.

A holistic approach to questions of evil embraces every example of evil. This is not merely an economical way of thinking. It copes with the acute problem of defining evil.

ON NOT DEFINING NATURAL EVIL AND FREEDOM

Evil is notoriously difficult to define. A holistic approach to the problem of evil, because it is all-or-nothing, does not require a precise definition of natural evil. Because it deals with all relevant examples *en bloc*, it is not overwhelmingly important whether any particular happening is in fact evil or not. Our pre-critical intuitions about what we want to call evil will suffice. I offer no close definition of natural evil; it is enough to see it in general terms and intuitively. Our intuitions are relative and subjective, but none the worse for that.

Human evil, by contrast, will need some degree of definition to the extent that what constitutes human evil is defined by the bounds of the notion of free action against the notion of event. The question of defining human evil will be examined in the third part of this book.

Similarly, human freedom is problematical. I cannot escape some definition of freedom. I develop the concepts of materiality, mutuality, temporality and communality as four substituents of human freedom. These are, I believe, highly defensible, both philosophically and theologically. However, they too are merely a working hypothesis. Other definitions of freedom would serve as adequately in the structure of my overall argument.

THE MIND/BODY QUESTION

There are many complex issues in this area of philosophy which need not be countenanced. It suffices to admit that those dualistic accounts of the mind which deny the necessity of an adequate, physical structure as the mind's substratum are incompatible with the present argument. If the mind does not depend upon the brain, then there is no necessary connection between human freedom and physical structures which also exhibit natural evil. I therefore preclude such dualistic accounts *ex hypothesi*.

OVERVIEW

The basic thesis of this book is 'that which is necessary for human freedom is also sufficient for evil'.

Part I of this book clarifies the nature of the problem of evil. It re-examines Alvin Plantinga's approach and by developing a critique of this proposes a new way of dealing with the intellectual problem of evil.

Part II develops a complex argument which relates human freedom to its physical basis in the natural world and in particular in the human brain. Chapter 8 demonstrates by close logical analysis that it is reasonable to believe that that which is necessary for human freedom is also sufficient for natural evil; that this proposition is both plausible and very problematical to counter.

Part III extends the basic argument concerning natural evil to the subject of human evil. It explores the possibility of finding a parallel argument from human developmental psychology without making any ontological commitment as to the precise nature of human evil.

WAYS OF READING THIS BOOK

George Bernard Shaw called facts the brute beasts of the intellectual jungle. Arguments and logic must be the snakes in the grass, dissembling, self-concealing and treacherous.

This book is based upon a complex argument and covers much ground over a number of disciplines. I ask the reader to read the book in two different ways. The overall argument and those chapters like Chapters 8 and 9 where logical analysis is to the fore, must be read carefully and critically in the spirit of intellectual scepticism. Other material needs to be reread for its imaginative impact. The description of evolution and the human brain is one case in point – Chapters 6 and 7 – but above all Chapter 10 on the insights into human evil offered by Melanie Klein and others needs to be read as a meditation upon the possibility of understanding human evil as human beings rather than logicians. Philosophy and theology have no right to be intellectually sloppy, but their power is in the suggestiveness of their truth.

SYMBOLIC LOGIC

At several places within the text I have found it necessary to express arguments through the medium of symbolic logic. This has

the advantages of conciseness and clarity. Symbolic logic can avoid many of the ambiguities inherent in propositions conveyed through sentences in English. However, for the unaccustomed eye it can also feel unhelpful. In the Appendix, I have therefore placed not only a key to all of the logical symbols used, but also a translation of each of the lines of argument enumerated in the text. Lines of symbolic logic are numbered consecutively throughout the text to facilitate this cross-reference.

2

Redefining the Problem of Evil

The problem of evil confronts the thinking believer with a genuine, intellectual challenge to the tenability of faith. Evil will make atheists. It is pastorally true that evil will make believers too. The problem of evil in its effects upon ordinary people is not clear-cut. The same kind of experience can both destroy and create faith. One response is not more reasonable than the other; rather, the intellectual formulation of the problem does no justice to the complexity of the real situation of encountering evil.

The intellectual problem of evil implies that there is a logical contradiction between the reality of evil and belief in the existence of God. The Humean syllogism expressing this alleged contradiction is open to criticism on two counts. Firstly, it may well be logically inadequate. Secondly, its very existence as a logical conundrum suggests the notion of a solution to the problem of evil. The very language which speaks of 'the problem of evil' and 'solution' is beguiling. The alleged, logical contradiction is one single aspect of a complicated, multifaceted human experience. Evil has no solution. The intellectual problem of evil is formulable as an objection on logical grounds to the coherence of theism. If the problem can be solved, it does little about evil as such; rather, it might rebut an objection to belief in God. Much of theodicy in this tradition is apologetic.

This book, as a prolegomenon to a theology of evil, will investigate the relationship between human freedom and natural evil. When this relationship is expounded, it should be possible to think more constructively and less naïvely about the mode of God's relating to the world and our consequent view of and response to evils. Only then will it be possible to consider human evil.

This chapter will redefine the function of the Humean syllogism within a broader consideration of evil.

THE VARIETY OF EVIL

The atheist does not necessarily need to question the objective coherence and meaning in a universe which contains evil. Evil for the atheist might turn out to be a question only of coping and surviving the unpleasant, the painful. This is not to be seen as a pragmatic, amoral or hedonistic task. The relation of meaning to survival has been clearly outlined by Viktor Frankl's (1987) study of meaningful living as the key to survival in Auschwitz. Meaning is by no means the prerogative of the religious view of life. Thus, while rejecting theodicy, such thinkers as Ernest Becker[1] have pursued the parallel question of anthropodicy. While evil is not a problem about belief in God, it is still an acute problem about the nature of humanity.

For the theist, evil has the particular significance of threatening to undermine the very roots of her value system. If evil undermines the possibility of belief, then meaning is lost as well. The appeal of the intellectual problem of evil is in its offer to safeguard the coherence of belief in God and thence of the theist's system of value and meaning.

Nevertheless, theistic and atheistic discourse on evil have more in common than first meets the eye.

To discover this common ground, we need to understand that there is no agreement about the content of evil as a concept. For the Christian, it is tempting to see evil as an extension of the notion of sin and so to define it in terms of the will of God. This is unsatisfactory. Firstly, the notion of God's willing is controversial; it is not a secure basis for a definition of evil. Secondly, the definition is tautological. Even if the statement that evil is that which is contrary to the will of God were *prima facie* acceptable, it adds no information. What is it that is contrary to the will of God? Thirdly, evil is a shared concept between Christians, those of other faiths and those of no faith. It therefore should not be imprisoned in a category of Christian theology which might be meaningless to others who have some claim upon the shared experience of evil.

If there is no satisfactory, theological definition, then empirical definition is equally elusive. It is clear that what can be called evil is a matter of personal opinion between people of the same culture and manifests wide variety across cultures. Roger Hooker[2] points out that what a Westerner would describe as indubitably evil because it is the source of suffering might be welcomed and embraced by a

Hindu on the grounds that short-term, retributive suffering will negate the weight of karma and so be salvific. It is difficult to see the same event as being evil to the Hindu and the Westerner with anything like the same meaning. The meaning of evil is culture relative.

Does this matter? May we not talk of the problem of evil, whatever evil might be? Some discourse might be sustained without specifying a concrete referend. However, one main stream of thinking within the free-will tradition, typified by John Hick's 'vale of soulmaking' theodicy, involves a strategy of attempting to justify evils individually. This would require a tight knowledge of what aspects of human experience need to be justified in the first place. The contestability of the content of evil cannot be ignored by those who take an atomistic approach. A holistic approach to evil need be less concerned with the concrete referend of the word 'evil'.[3]

If it does not mark a defined body of experience, how then does the word evil function? This question has long occupied the anthropologist, David Parkin. Brief reference to his answer will prove fertile. In his book, *The Anthropology of Evil*, he uses a functional analysis of the word 'evil' to examine this ill-defined concept across several cultures. This is unorthodox within his discipline. It is normally thought desirable to use an objective and non-contestable concept such as witchcraft. He writes in the book's introduction:

> the main suggestions . . . are that evil refers to various ideas of imperfection and excess seen as destructive; but that these are contestable concepts which, when personified, allow mankind to engage them in dialogue and reflect on the boundaries of humanity.[4]

This definition is tinged with reductionism. There is implicit within it two ideas: that what is truly destructive is a matter of subjective opinion alone and that Good and Evil are personifications of human concepts – projections rather than independent entities. While such reductionism is a fair approach for the anthropologist, the Christian theologian need not consent to it but can still benefit from Parkin's methodological insight.

For Parkin, the concept of evil, virtually independent of its specific referend, acts as a problem-solving device. It involves a process of dialogue. Encountering evil is seen as a dialectical process which identifies, faces up to and then attempts to transcend or

find reconciliation with that which is fundamentally unacceptable to our self-perceived humanity.

Christian theology of evil can now be seen as having much common ground with the atheist's encounter with evil. Each is in dialectical process. The contents of the process will differ in that belief structures are dissimilar. They will probably not agree as to what it is that is fundamentally unacceptable to our self-perceived humanity. Yet, each can use the word 'evil' to mark off that which is seen as an affront to true humanity.

In Christian theology, this dialectical process will happen at many levels. A reassessment of the nature and attributes of God, the developing of kenotic themes in the doctrine of creation, a maturing of personal spirituality, an acknowledgement of the place of protest and rage, the evolving of appropriate pastoral strategies and consideration of practical counters to specific evils, will all have their place in the process. The role of the intellectual problem and specifically of the Humean syllogism within this process needs further clarification. This will be accomplished firstly by paying attention to Kenneth Surin's objections to theodicy then rejecting the apologetic agenda of the intellectual question and, finally, establishing the virtues of a holistic approach to evil – leading naturally to a consideration of Plantinga's free-will defence.

THEORY AND PRACTICE

Kenneth Surin's *Theology and the Problem of Evil* describes two approaches to theodicy – the theoretical and the practical. Neither, he argues, is adequate for theodicy's task. Rather, theodicy must be a second-order language activity which takes full account of the first-order activity of describing the horror of evil. Accounts of the latter are primary. In the light of the Holocaust, we must 'take burning children seriously'.[5] However, theoretical and practical approaches to evil can be complementary. Within the dialectical process, the Humean syllogism will have its place.

This point is well made in an undervalued, English attempt to revive natural theology. Leonard Hodgson's *For Faith and Freedom* is both popular theology and thoughtful scholarship. Hodgson's discussion of evil falls largely within the free-will tradition; he resembles Hick in describing the creation as a process analogous to teaching. He seeks to justify evil in terms of its eschatological outcome. In this, he is open to the same criticisms as Hick. However,

he is also aware that the intellectual answers are unsatifying, for his motivation in seeking to rehabilitate natural theology is his conviction that God is to be contemplated within the created order. In contemplation, there can be no separation of thought and action. No idea is a solution to evil. Thus, in his theological motivation is rooted his plea to seek practical solutions to evil as well. Theory and practice are not to be separated:

> The light we have got is light by which we must live as well as look, and it may be that by the action we take this or that opaque object in the surrounding darkness may be changed so as to become transparent to thought.[6]

The force of Hodgson's metaphor of light is that intellectual understanding, far from being detached from the process of living, is an integral part of it.

This complementarity is illustrated in a workaday context by Melvyn Thompson's *Cancer and the God of Love*. Investigating possible approaches to cancer sufferers, he concludes that there are those who need intellectual understanding and those who primarily need emotional resources. He describes them as the 'Why?' people and the 'How?' people and then indicates the resources of symbolism within faith and the hospital in which both approaches can find their satisfaction:

> 'How?' without 'Why?' is superficial and lacks direction.
> 'Why?' without 'How?' is remote from life, and an intense frustration.
> In the symbol, the 'How?' and the 'Why?' come together.[7]

Once the possibility of complementarity is seen, Surin's critique of theoretical theodicy can be taken fully seriously.

One of his most powerful arguments is that theoretical theodicy is radically ahistorical. This argument itself is two pronged. The first part notes that, to the extent that the post-Leibnizian draws on the tradition of the early church, of Augustine and, in Hick's case, of Irenaeus, she ignores the historical context of the source. While medieval theodicy notes the question of evil and the goodness of God, it finds it no barrier to belief; why then does the modern age find evil so strong an argument for atheism? The second and subtler point is to note that the post-Leibnizian is ahistorical in seeking an absolute stance. This metaphysical theodicy is an

'individualistic quest for logically stable notions, exact axioms, and rigorous chains of deductive inference.'[8]

Once in a while the theodicist can indeed appear subhuman. Dewi Phillips quotes a passage of Somerset Maughan against Swinburne to remind us of this:

> I know that suffering did not ennoble; it degraded. It made men selfish, mean, petty and suspicious.[9]

Theoretical considerations must, therefore, find their context within a greater whole. A properly contextualised use of the Humean syllogism is such that it does not aim to form a total solution to evil within the possible intellectual constructs that might become available through the enquiry, but rather aims to establish such a world view as to allow the believer's faith to become a positive force in opposing evil rather than a source of existential anxiety in the face of evil's reproach. An intellectual facing of evil can serve the need of faith for investigative, open-ended and vigorous self-confidence in the face of that which casts doubt upon its very roots.

REJECTING THE APOLOGETIC TASK

A Christian theology of evil consists of a dialogue between varied and disparate elements. The emotional impact of evil, the drive for practical action against evil and the intellectual problem are of similar importance.

In the Humean tradition, the commitment of theodicy to an apologetic task has grossly distorted the function of the intellectual problem. Let us examine the apologetic demands of the Humean syllogism, so as to set them firmly on one side.

Hume wrote

> Is he willing to prevent evil, but not able? then he is impotent. Is he able but not willing? then he is malevolent. Is he both able and willing? whence then is evil?[10]

Philo's aphorism is an invitation. It invites us to accept and then wrestle with its logical implications. Surin's criticism is that it is also an invitation to do theodicy in a meaningless way. The theodicist is tempted to blasphemy against human suffering. She could never

acknowledge through the intellectual task set by Hume the force of Ivan Karamazov's rejection, not of God, but of the divine process as he perceives it:

> 'It's not God that I don't accept, Alyosha, only I most respectfully return him the ticket.'
>
> 'That's rebellion,' murmured Alyosha, looking down.
>
> 'Rebellion? I'm sorry you call it that,' said Ivan earnestly. 'One can hardly live in rebellion.'[11]

Let us now examine the nature of Hume's invitation and the possibilities behind the free-will class of responses to it.

Among the various possible attacks upon the Humean syllogism's logic, perhaps the most interesting concerns the notion of omnipotence. It is usually admitted that absolute omnipotence is self-contradictory. There is at least one class of things which even an omnipotent God cannot do – the logically impossible. This is not in itself controversial. The free-will defender uses this fact to establish human freedom as a logically necessary cause of evil. God logically cannot make free beings without allowing evil.[12]

The syllogism seems to be powerful. It therefore invites us to undermine its logic, to break its form. I suggest that its appeal and its power lies in its seeming to express a self-evident truth of a non-logical kind. Its argument can be summarised thus:

> When you look at the sort of things people say about God, and then look at the sort of world we live in, then that God is scarcely credible, is He?

This is strongly rhetorical. The appeal of the attack on omnipotence lies not in that it is the only weak point in the syllogism. (Ahern's criticism[13] of the logical connection between goodness and the avoidance of evil as insecure – a *non sequitur* – has some force, but is not strong enough to bear the weight of a theodicy.) It lies in the fact that philosophical ground rules already acknowledge the limitation of the meaning of omnipotence. It does not feel like special pleading.

The rhetoric rather than the logic of the syllogism is its force. It invites its opponent to make concessions which it implies are too costly. It discredits any potential opponent by implication. The rejection of either divine goodness or divine omnipotence is

undesirable, it implies. The proponent of an attack on the omnipotence clause simply feels that there is less to concede to the atheologian here, than in conceding the goodness of God.

There is an important difference between the idea that there are classes of deed which are not available to God on logical grounds – non-omnipotence in principle – and the idea that God is simply not all-powerful – contingent non-omnipotence. The latter position is held by process theologians. Because they deny *creatio a nihilo*, God is contingently restricted by the material available to him. Process theodicy has to meet several challenges at this point, but the main problem for the Christian is that process theology attributes to God non-omnipotence as a contingent rather than necessary attribute. This is far from comfortable. It is too near to following Hume into dismissing the God of the Judaeo-Christian tradition. A God whose limitation of power is necessary is less of a concession to the Humean rhetoric.

Why, then, accept the invitation?

It is evident that, were the force of the syllogism to be incontrovertably rebutted, the result would not be that the God of Abraham, Isaac and Jacob could be inferred. The invitation is to defend an inadequate definition of God. The rhetoric of the syllogism forces the Christian theodicist into an apology for a God in whom she does not believe anyway.

What are the consequences of rejecting the invitation to make Christian theodicy also an act of Christian apologetic?

The practical theodicist does take this line. She asks not whether God exists but how God is interacting with the world's evil. The theoretical approach can similarly decline the apologetic task. If the theoretical theodicist assumes, as she is entitled to do, the reality of her God, then the task of her theodicy shifts significantly. She cannot, *ex hypothesi*, deny God. The subject of her discourse is the coherence of the relationship of God and the world as we know it. The task of a theology of evil is to describe adequately the relationship between God and the world so as to render intelligible – to render bearable – our understanding in head and heart of evil. This description cannot be an abstract one. Rather it is to be practical and pastoral. It will affect the way that people feel, interpret and act.

The syllogism's rhetoric is turned on its head. It compelled us to ask 'In view of evil, where now is your God?' In declining the apologetic task, we reformulate the question: 'In view of God, where

now is our humanity in relation to evil?' This reformulation has a superficial resemblance to what Surin characterises as practical theodicy, but it does not denigrate the Humean syllogism as a starting point. Moreover, its task now bears a clear resemblance to David Parkin's functional definition of evil. It invites us to consider the boundaries of our humanity in the light of God's existence by discovering the dynamics of the given order of material creation.

The believer experiences doubt in God as a valid response to the evil in our world. The rhetoric of the Humean syllogism contains a mighty existential truth. In declining the false task of apology, the Christian theodicist can utilise the consequent resources of the metaphysical debate as a symbol by which to interpret the relationship between herself-in-her-world and her God.

A HOLISTIC APPROACH TO EVIL

In allowing the Humean debate to focus our attention upon the question of omnipotence and, thence, free-will arguments, it is important to note that there are two types of argument available, which I dub the holistic approach and the atomistic approach.

The distinction is raised by Aquinas in the *Summa Theologiae* (Part 1a, question 49, article 2). Aquinas' intellectual problem is that since, in his view, evil has no essential being, it cannot be a first cause and so all evil must be caused by good. He develops from this his doctrine of double goodness. Essential goodness is a necessary quality. Goodness *per accidens* is contingent. In this way, evil is seen as the cost in terms of the privation of contingent good which must be paid for in the cause of necessary good:

> So then in causing the common goodness of the ordered universe, [God] causes loss in particular things, as a consequence and, as it were, indirectly, according to the words, 'The Lord kills and brings to life'.[14]

Aquinas puts forward a holistic approach. In order that the necessary goodness of all that is should be achieved, then the evil which results is there as a loss of contingent goodness. Necessary goodness, which is being itself, is a global concept. While it is possible to talk of the necessary goodness of any individual entity – in man, rationality, when wisdom is contingent – the notion of necessary

goodness is unitary. It is not possible to talk of some men as rational and others as not, in Aquinas' sense. Humanity is rational. Necessary qualities are generic; only contingent qualities are specific.

Therefore, the necessary good which incurs as its price the privation of contingent good is instantiated throughout the creation, as it were, uniformly. It makes no sense to speak of there being more or less necessary goodness at one point or another. Conversely, contingent goodness does occur in a punctiliar way.

The holistic approach insists that the necessary element for which evil is the price is a universal within the created order. The necessary quality – whatever it might be – is an all-or-nothing within the material universe. By contrast, the atomistic approach trades a local evil for a local good.

Much free-will theodicy of this century has taken an atomistic approach. Hick's vale of soul-making theodicy will stand as a good example.

Hick's basic stance is simplicity itself. The final part of *Evil and the God of Love* posits a creation in which humanity is being led into maturity of spirit through a valley of suffering. This world is indeed full of real pain. The vale of soul-making is a dark enough place. However, the maturing of whole persons is its rationale. There are a number of problems with Hick's line of thinking. Not all evil is conceivably useful. Much, even if potentially useful, is excessive to the actual need. The residual evil and the fact of a large proportion of humanity not reaching maturity in this world leads Hick onto an *ad hoc* eschatology. His eschatology is shaped by the systematic need of his own thought. It is constructed to provide room for further maturation and through its universalism to guarantee an allegedly adequate compensation for any evil.

The key characteristic to grasp of the atomistic approach is that each evil would ideally need to be justified on its merits.

Swinburne[15] takes a similar line in his dialogue with Dewi Phillips:

> Or [God] can create a basically good but half-finished universe – one in which many things need improving, human agents do not always know what is right, and their purposes are frustrated; but one in which agents can come to know what is right and can overcome the obstacles to the achievement of their purposes.

Later in the same debate,[16] Swinburne indeed admits his commitment to a detailed justification of each evil – at least in principle.

This whole approach is philosophically unrewarding since it means a commitment to deal with each member of an infinite series – the task of Sisyphus.

The holistic approach allows the Christian to agree that, in terms of all its contingent evil, the world is a harsh and terrible place. She may agree with the need to act against evil. She may sympathise with the protest theodicist. The world really hurts. However, she is contributing, through her analysis of the logical connection between necessary goodness and contingent evil, to the dynamic process which constitutes the facing of evil, the reclaiming of some meaning and the healing of our conceptual basis.

A holistic approach relieves the theodicist of any need to quantify or defend individual evils. It releases eschatology from its *ad hoc* bondage to the problem of evil. It permits the theoretical theodicist to be part of the spiritual community of struggle against evil, rather than being isolated as a mere defender of stable intellectual patterns.

Since the Thomistic categories are obsolete, is a holistic approach available today?

A compelling answer is suggested by R. W. Kropf's *Evil and Evolution: a Theodicy*. He describes the evolutionary process and relates it to the problem of evil. Evolution generates the created order, but is logically incapable of eliminating all evil. It is a universal, taking the place of Aquinas' necessary goodness. It similarly detaches all other instances of contingent evil from the direct intentionality of God. There is no need to justify all that arises by evolution. There is room for the human protest. Kropf observes that

> a universe in evolution is much more heartless than one seen as coming ready-made from God.[17]

Evolution is the ground of a holistic approach which needs further investigation. Kropf, having identified its potential as a tool for the free-will approach, does not take further the logical interconnectedness of evolution and divine omnipotence and goodness. While he attributes human freedom to evolution, he does not analyse its logical necessity. Evolution is for him an unquestioned given.

Yet, for it to have any use within a theology of evil, it must be shown that it is rational to believe that a process such as evolution is strictly necessary to human freedom. Such is the task of this book.

3

Plantinga's Free-will Defence: Critique and Proposal

In theoretical theodicy, a free-will defence (hereafter FWD) has a very specific function to perform. Its argument clearly stems from a concern that evil can be best understood as the inevitable by-product of the creation of human freedom. However, a defence does not aspire to show the truth of such arguments as such but only their reasonableness.

Although Plantinga's concern with theodicy stems from his teen-age years, his first major contribution to the formulation of a FWD formed part of his study of what he terms natural atheology in his 1967 book *God and Other Minds*. The classic argument of the FWD is still to be found in Chapter 9 of *The Nature of Necessity* (Plantinga, 1974). His later work has contributed some modifications of little fundamental significance. He has continued to refine the curious debate between his incompatibilism and compatibilism. In 1979 and subsequently,[1] Plantinga developed his arguments concerning the probabilistic problem of evil.

Plantinga's later work on the problem of evil is of limited interest to us, since his arguments are all logically subsequent to his position in *The Nature of Necessity*. This chapter criticises the basic definitions which Plantinga had set out or assumed by 1974.

There are two definitions which Plantinga deals with briefly, almost in passing, in *The Nature of Necessity* which need to be challenged.

Firstly, Plantinga is committed to possible world semantics (hereafter PWS). PWS is a logical construct first suggested by Leibnitz whereby we may speak of very complex, maximal sets of propositions as though they were worlds – in effect a thought experiment.

Part of Plantinga's argument against compatibilism – the doctrine that free-will and determinism are non-contradictory – concerns what he calls Leibniz' lapse. This claims that an omnipotent God

can instantiate any possible world he chooses. Plantinga denies this. Even an omnipotent God is bound by logical possibility. He outlines a defence against the contrary argument. While it is a useful defence by its own terms, this whole area of Plantinga's work seems to be naïve as to the meaning of instantiation. I will argue that a possible world semantics has lulled Plantinga into accepting unsound concepts centring upon the verb to instantiate.

Secondly, Plantinga defines free-will as libertarian. Freedom exists for him where there are no determining factors. He allows himself to be drawn into the debate over compatibilism in terms of determinacy versus indeterminacy. I shall argue that this is a false dichotomy. The FWD is curious in that its theological basis is in human freedom and not free-will. It is not obvious that the notion of free-will is coherent; even if it is, it is doubtful that it and it alone fulfils the theological function which the FWD assigns to it. The FWD is flawed in that it allows itself to be seduced by the atheologian into an over-simple opposing of freedom and determinism.

Robert Adams has shown that Plantinga regards the philosophical problem of evil as existing in three species – the abstract logical problem, the concrete logical problem and the probabilistic problem.[2] The two criticisms offered in this study concern the abstract, logical problem of evil. This is logically prior to the other two. If the approach to the abstract problem is in error, then the two subsequent problems either need to be radically reformulated or may conceivably cease to exist. This chapter does not aim to rework the concrete and probabilistic problems. It is sufficient that the approach to the abstract problem be revised.

PLANTINGA'S FREE-WILL DEFENCE – ITS NATURE AND STRUCTURE

In Plantinga's own terminology, a defence is not a theodicy. The latter attempts to show that the way the world is in respect of evil positively justifies a belief in God. The former has a more modest programme. It aims to demonstrate that the existence of evil is logically compatible with belief in God. Plantinga has been criticised unfairly because his defence is not a theodicy.[3] *Prima facie* a defence must be taken on its own terms.

The basic argument of the FWD is that human freedom is good but, nevertheless, entails the possible existence of evil. This outline

argument is eloquently put by Keith Ward in his discussion of the competing traditions of inclusive and exclusive infinity:

> neither tradition is capable of dealing adequately with a crucial difficulty which arises when the relation of God, necessary, eternal, perfect and immutable being, to a universe of contingent, and even free, beings is considered. The difficulty, put briefly, is this: if our demand for rational intelligibility of the universe is to be satisfied, God must be a necessary, eternal and therefore changeless individual. But if our demand for human freedom and the contingency of the finite world is to be met and especially if we are to speak of free creation, either by God or by human beings, then it cannot be the case that the universe depends solely upon a necessary being, for the truly contingent cannot arise from the wholly necessary; and if creation, Divine or human, is free and contingent, then creation is incompatible with necessity.[4]

While Ward's use of the category of divine necessity rather than omnipotence is unhelpful in that the application of the notion of necessary existence to God is controversial, the basic point that there is an apparent contradiction between the ineluctable nature of God and the contingency of creation, is still well made. Theists are bound to give some account of human freedom in these terms. So important is the problem that Antony Flew, for one, thought it to be an essential element in any Christian doctrine of creation:

> What the doctrine of creation means is that all power is from God, that all things and all creatures are always and utterly dependent upon God, for their being and their preservation, . . . for their powers, their activities and their limitations.[5]

The FWD has as its linchpin the idea that evil is in some way connected with the need for an omnipotent God to accord creaturely freedom. The nature of this connection needs considerable clarification.

(Part of the general process of clarification of arguments in this book will require that we use symbolic logic. The full set of symbols used is explained in the first part of the Appendix. Symbolic logic is not merely a useful way of expressing an argument crisply and unambiguously at this stage: in Chapter 8 it will be a crucial tool; for the tactic of investigating the strict necessity of natural evil will

be to discuss at some length the modality of a specific argument. This may only be accomplished with brevity and clarity when there is the opportunity to see the exact function of modal operators throughout that argument.)

Plantinga's FWD has the following argument form:[6]

$$(\Diamond(P \wedge R) \wedge ((P \wedge R) \rightarrow Q) \rightarrow \Diamond(P \wedge Q)). \quad (1)$$

In this argument, P and Q are allegedly contradictory statements. The task is to show that they are compatible. To do this, a third statement is devised. It must be consistent with P and together with P must entail Q. Let us call this the compossibility clause. The devising of a compossibility clause such that the conjunctions and entailments of the above argument are valid is the aim of the defence. The formal validity of the argument form above is not challenged, to my knowledge, by any of Plantinga's opponents.

The substitution instance of the argument which constitutes Plantinga's FWD is

P God exists and is omniscient, omnipotent and wholly good.
Q There is evil.[7]

The alleged inconsisitency of these two statements is not formal, but what Plantinga terms 'broadly logical'. That is to say that there are no resources of propositional logic which will demonstrate the alleged incompatibility of P and Q. Rather, any contradiction is implicit in their content. The two clauses are the major and minor premisses of the Humean syllogism.

Plantinga's FWD offers two compossibility clauses, one to deal with moral evil and one to deal with natural evil. The latter he states thus:

> R Natural evil is due to the free actions of nonhuman persons; there is a balance of good over evil with respect to the actions of these nonhuman persons; and it is not within the power of God to create a world that contains a more favourable balance of good over evil with respect to the actions of the nonhuman persons it contains.[8]

This approach in effect reduces all evil to moral evil. Plantinga is right that this compossibility clause performs its requisite, formal

function. Its improbability is not grounds for dismissing it. However, this fact merely serves to illustrate the limitations of the initial strategy of composing a defence. Perhaps it is not rational to allow one's justification of rationality to rely upon a statement which is seemingly indefensible. (See the Appendix.) If this compossibility clause is of any worth, it is good to defend its possible truth value. That task must fall to someone who believes it to have positive truth value!

Plantinga's compossibility clause for natural evil is interesting because it shows a failing which is characteristic of Plantinga's whole habit of mind. The content of the *R* clause is complex. It posits that there are non-human persons – demons – who cause natural evil. Plantinga may well reply that this need not for his purposes be a believable belief. However, it does need to be a possible belief. This means that the clause must be self-consistent. I think it is not so. There are two separate inconsistencies implicit within the clause.

Firstly, it posits demons who are free and that this freedom is, on balance, good. There might be reason to argue that humans have good freedom even at a considerable price. Could this be true of demons? Might not God intervene with these non-material beings to restrict their freedom absolutely without endangering his own creative purpose? The FWD may justify the cost of human freedom, but it cannot theologically justify the huge, additional cost of demonic freedom. What price would God pay for the mere abolition of demonic freedom?

Secondly and more importantly, it is implied that these demons could causally affect the world so as to account for all natural evil. Which world? Not any possible world, where we are allowed to let our imagination run riot. They must affect this world, which Plantinga refers to either as Kronos or α. Therefore, the hypothesis must be possible, consistent with α. This would mean that every natural evil would need to stem from the action of non-material contingent beings. There is little or no empirical evidence to suggest this is so. It looks as though all natural evil has material cause. (Action or causation by non-material contingent beings would be very different from acts of God. They would surely closely resemble human action. There would be no question of double causation. Natural evil would look like a glass of water being drunk by the Invisible Man.) The content of the compossibility clause is not self-consistent. It posits specific phenomena in α for which there is no empirical evidence whatsoever. Plantinga refers only to strictly

logical possibility. However, many hypotheses contain elements of causal possibility. There is a relational impossibility within *R*. Plantinga fails to see that the content of *R* must be consistent with the content of α. It patently is not. In an important sense, then, this clause is not possible, not self-consistent. It fails because it necessarily refers to α. Had it referred to another possible world, the self-inconsistency would not have arisen.

This failing can be generalised. Compossibility clauses have the task of dealing with evil in α. Therefore, whenever they refer to contingent entities, they must be consistent with the content of α. When they are patently inconsistent, they fail. Possibility is more than a strictly formal concept. Plantinga, under the influence of PWS, fails to note this requirement for a causal or relational possibility. In doing so, he ignores material that could serve his own cause. The content of α implies logical restrictions upon God, which serve towards a FWD, but which are not at all obvious when expressed in terms of deductive logic. The theodicist needs to demonstrate that God, although aboriginally omnipotent, is logically restricted. These restrictions can be highly complex. Some important restrictions may only become visible by induction from the content of α. We need to pay greater attention to the actual world than does Plantinga.

In spite of the above discussion, Plantinga's FWD is mainly concerned with moral evil. His compossibility clause here is in two parts – the first modal and the second factual:

R_1 It is not within God's power to create a world containing moral good but no moral evil.[9]
R_2 God created a world containing moral good.

Because it restricts itself to moral evil, the moral-*R* compossibility clause is more plausible than its natural evil counterpart in that the connection of free-will and morality is more evident. However, the clause moral-*R* does have its weaknesses. The classic difficulties concern the first part, R_1. Plantinga maintains that R_1 requires adherence to a doctrine of libertarian free-will and, thus, needs to rebut all arguments for compatibilism. He adheres to an unnecessarily difficult doctrine of human freedom seemingly uncritically. Plantinga also feels the need to argue that moral R_1 cannot be undermined through the probabilistic problem of evil. These major debates, the latter absorbing Plantinga's attention

over most of a decade, divert our attention from the implications of moral R_2.

The proposition that God created a world containing moral good seems obviously true at first sight. What does it mean? Let us note the fact that God created a world. He did not instantiate it. This is more than a triviality. We need to establish the distinction between creation – a theological term – and instantiation – a term of possible worlds semantics. To this end, we need to look at some consequences of Plantinga's adherence to PWS.

POSSIBLE WORLDS SEMANTICS

Plantinga relies for much of his argument upon PWS, which find their origin in the work of Leibniz. There is no doubt that PWS is a powerful tool for analysis. However, PWS have led Plantinga to talk of possibility and of instantiation and creation with a disconcerting lack of clarity.

A possible world is simply a maximal state of affairs. It contains all states of affairs which are consonant with one another and precludes any states of affairs which contradict each other. In turn, a maximal state of affairs is nothing more than a maximal set of self-coherent propositions. It is not a state of affairs as we normally construe that phrase.

Let us consider three possible worlds. There is the actual world which Plantinga usually calls α, in which I am wearing a white shirt. This is W_1. In W_2, every detail is identical except that I am wearing a yellow shirt. In W_3, there is no gravity and light travels in curved lines. The distinction between W_1 and W_2 is so minute as to be inconsequential, yet two maximal states of affairs differ in one detail; my shirt cannot be both all white and all yellow. W_3 is so different from α as to be beyond our imagination. Moreover, W_3 can legitimately be called a possible world even though the notions contained within it may usually be thought of as impossible. The 'possibility' of possible worlds is conventionally broadly logical possibility. More subtle questions of possibility do not arise. This is fair enough if PWS is seen as a thought experiment. However, it can seduce us into believing that all possible worlds are possible. Plantinga has argued that there are possible worlds in which God prevents free beings from ever doing evil. If his argument against compatibilism holds, then these possible worlds are in a real sense

not possible. In the PWS vocabulary, God may not instantiate those worlds.

What is the ontological status of a possible world? Possible worlds are necessary, because each possible world exists in every other possible world. In fact, this says nothing more than that a possible world is a complex proposition. Propositions, like numbers, are necessary. Their referends are not. This concept *should* provide little trouble. However, in philosophical theology possible worlds can acquire, as if unnoticed, a very different ontological status. It is this shift of status which adds to their seductive quality. If a possible world is a proposition, then it is knowable, runs the argument. If it is knowable, then it will be known by any omniscient being. Therefore, God knows all possible worlds. It is as if they are all contained within him. He may survey them and instantiate any one he chooses.

This is the position held by a compatibilist such as J. Mackie.[10] Plantinga comes close to this position, observing only that there is a relatively narrow band of possible worlds which God cannot instantiate, because he cannot instantiate the consequent of creaturely free action. This makes a small albeit important exception to the general rule that God may survey all possible worlds and then instantiate the ones he wishes to.

That God may know, survey and instantiate any possible world may be criticised in terms of the problem of middle knowledge. Middle knowledge was the subject of a late medieval scholastic debate; its main proponent was the Jesuit, de Molina. Hence, a belief in God's having middle knowledge is sometimes referred to as Molinism. The main issue concerns the status of counter-factual conditionals of the form

If *X* would have happened, then *Y* would have been the case.

If God is omniscient, the argument goes, then he will have middle knowledge. He will, in other words, have certain knowledge of the truth value of a counter-factual. However, it is far from clear that counter-factuals actually have a truth value.[11] (An ingenious and convincing rejection of the truth value of counterfactual conditionals is offered by R. Ackerman (1982) in his discussion of the Türing machine halting problem.[12]) If they do, then God can know what would be the consequences of any action. A counter-factual conditional is a proposition relating to a possible state of affairs. Therefore, a possible world is in effect a maximal set of counter-factual

conditionals. If counter-factuals lack truth value, the notion that God can survey all possible worlds is false.

Plantinga, as said above, needs to refer possibility to the actual world. God does not survey all possible worlds and choose to instantiate whichever he pleases. There are far greater constraints than those claimed explicitly by Plantinga. This will be further expounded in considering the confusion underlying Plantinga's notions of instantiation and creation.

It is ironic that Plantinga himself goes to some length to point out the distinction between creation and instantiation:

> We speak of God as *creating* the world; yet if it is α of which we speak, what we say is false. For a thing is created only if there is a time before which it does not exist; and this is patently false of α as of any state of affairs. What God has created is the heavens and the earth and all that they contain; he has not created himself or numbers, propositions, properties, or states of affairs; these have no beginnings. We can say, however, that God *actualises* states of affairs; his creative activity results in their being or becoming actual. God has *created* Socrates, but *actualised* the state of affairs consisting in the latter's existence. And God is actualising but not creating α.[13]

This distinction is in itself clear enough. The problem is in giving accurate meaning to the sentence 'God actualises α'. The actual world is a material entity, the universe, while α, like all possible worlds, is a proposition. The actual world is contingent and exists in α, while α is necessary. There has been adequate theological and scientific debate for us to understand something of the meaning of God creating the actual world. What needs to be clarified is the meaning of God instantiating α.

Let us consider two models of creation, one an attempt at a scientific account and one mythical – the big bang model and the Genesis story. In the former, the theist sees *God creates* as meaning that God is responsible for the initiation of the process of evolution and for at least some aspects of the sustaining of that process. The procedure of complexification seems to have a high degree of autonomy even prior to the emergence of mind. When the universe becomes minded, autonomy is accelerated. Thus, God is the source of the process, but not the source or only source of its development. Whether he could even have known its outcome depends on the

logical status of counterfactual conditionals. In short, *God creates* is about a process in which there is autonomy of matter and of mind.[14] God creates an actual world, in the sense of giving it the opportunity to find its own way into being, without it being feasible that he instantiated that specific possible world.

In the latter model – the Genesis myth – sophisticated patterns of material and mind are brought into instantaneous existence. Thus, the initial conditions are specifically and in detail the certain responsibility of God. There is from the beginning a high information content in creation, while the scientific model requires all complexification to evolve. The Genesis mythology is, for all intents and purposes, the instantiation of one particular possible world.

I will argue in the coming chapters that human freedom requires as a *sine qua non* the very autonomy of mind and matter which we see in the actual world. This degree of autonomy within the created order is a constraint upon what is possible for God and is a very considerable one indeed.

What God can instantiate is constrained not only by the logic of free-will in the narrow sense explored by Plantinga. If full freedom in the sense of autonomy throughout the material order is the criterion rather than free-will as Plantinga defines it, then it is arguable that there is only one possible world which God can instantiate: the actual world.

This last claim may be too strong, but must stand within this prolegomenon as a first position. It presumes that God is solely the prime mover. One of the most pressing questions for the Christian realist concerns the nature, range and mode of God's action in the world and the availability of a language to describe it. It is feasible that the realist will adopt concepts of influence and pressure within the present moment. God, it might be argued, can indeed act, but not constrain. Freedom from divine constraint may be advocated on two fronts: free-will is incompatible with overriding constraint, but not with pressure or influence (Plantinga's case); the complexity of material autonomy is so great that there is no feasible notion of constraint available (the case of this book).

FREEDOM AND FREE-WILL

Chapter 4 will develop a working definition of human freedom. It is based upon the perceived inadequacy of Plantinga's use of the

term 'free-will'. It will be the foundation of my claim that material autonomy is both complex and necessary, a claim which forms the beginning of a theology of evil.

Plantinga invites his reader to look closely at freedom:

> According to the Free Will Defender, God thought it good to create free persons. And a person is free with respect to an action A at time t only if no causal laws and antecedent conditions determine either that he performs *A* at *t* or that he refrains from doing so. This is not a comment upon the ordinary use of the word 'free'; that use may or may not coincide with the Free Will Defender's.[15]

The last self-conscious sentence of this paragraph is a curiosity of Plantinga's thought. He is clearly defining freedom stipulatively. (He later retracts this position.[16]) This uncomfortable distinction between freedom in 'the ordinary use of the word' and unfetteredness is not merely a side-stepping of compatibilist objections. Rather, it indicates that Plantinga is attached to a notion of free-will because it complements a hidden agenda – his strictly theological requirements.

Plantinga's notion of free-will fails to see that most and perhaps all of our free decisions are caused in some sense or another. They are fettered. Freedom of will, if it is not an illusion, is about the way that we process pressures and constraints.[17] It is not about their total absence. Reflection on everyday experience would indicate this. What is Plantinga's hidden agenda?

Theologically, Plantinga attributes to free-will both human and divine goodness. It is of prime theological importance to Plantinga that people should be morally accountable for their actions. He even correlates indeterminate free-will with human creativity,[18] on the grounds that for humans to be creative they must be unfettered, because God is unfettered and creative. This is a series of *non sequiturs*: to be morally accountable is not to be creative, God is not unfettered, God is creative even when fettered and human creativity need not have the same ontological structure as divine creativity. Plantinga's theological attachment to the notion of indeterminate free-will is highly suspect. It contaminates his philosophical consideration of the problem.

Intriguingly, I believe that in spite of his definition of free-will, it seems obvious to Plantinga as well that free-will is not indetermin-

ate. In Chapter 9 of *The Nature of Necessity* there is a glaring inconsistency, although one which to my knowledge has gone without comment in subsequent literature.

Plantinga states as quoted above that free-will precludes 'causal laws and antecedent [determining] conditions'. The essence of freedom for him is that the act of will is not dependent upon anything that circumstands it. This is blatantly at odds with his notion of weak actualisation. In contending with the compatibilists, Plantinga notes that God cannot instantiate a state of affairs that arises from an act of creaturely free-will, since God's act would infringe the very freedom of will. However, Plantinga then tries to anticipate the compatibilist reply to this. The reply would be that even if God cannot strongly actualise a state of affairs, he can do so weakly. By this Plantinga means that God would strongly actualise the circumstances in which a free decision would be made so that the free decision made in those circumstances would move or tend to the desired end. (The fact that Plantinga is not troubled by this argument is beside the point.) He evidently takes seriously the notion of weak actualisation. How does it work?

In order to accomplish indirectly what he may not accomplish directly, God so organises the context of a free decision as to influence it. This seems plausible enough. Our decisions are indeed context relative. But Plantinga's theory of free-will specifically denies this. For an act to be free there must be a total absence of causal factors or antecedent, determining conditions. In discussing the possibility of weak actualisation, it is clear that Plantinga finally does not adhere to or believe in his own definition.

Human freedom is not the same as mere free-will. Freedom is necessary for love; free-will is necessary only for moral responsibility. Indeterminate free-will is not a coherent doctrine. It seems likely that this critique of Plantinga's FWD will take us away from anything which might technically be called an FWD, towards a theology of evil which is founded upon the theological imperative of human freedom in all its complexity and richness.

THE STRUCTURE OF A REVISED COMPOSSIBILITY CLAUSE

This brief critique of Alvin Plantinga's earlier work on theodicy has drawn attention to the inadequacy of his notion of free-will and to the lack of precision of broadly logical possibility in describing the

constraints that might impose themselves upon God. Plantinga grossly underestimates these constraints. Parts I and II of this book will describe these constraints in some detail, at least in respect of natural evil. Part III will attempt a tentative extension of this argument to human evil.

The argument of Part II is a revision of Plantinga's double compossibility clauses natural-*R* and moral-*R*. Chapter 8 will demonstrate that the argument should be taken as probably true and not merely feasible. The revised compossibility clause is stronger than what is required for forming part of a defence.

The compossibility clause has the following structure:

$$\Box(G \supset F) \quad (2)$$
$$\Box(F \supset A) \quad (3)$$
$$\Box(A \supset \Sigma(\Box a')) \quad (4)$$
$$\underline{\Box(\Sigma(\Box a') \supset \Diamond N)} \quad (5)$$
$$\therefore \Box(G \supset \Diamond N) \quad (6)$$

This should be read as follows.

Expression (2): it is necessarily the case, by definitional necessity, that if God exists (G) in the sense specified in Chapter 1, then there will be human freedom (F). This is a theological assumption of the argument. Implicit in it is the assumption that freedom is worthwhile, over the absence of any created beings capable of mutuality. However, the necessity of the modal operator is definitional. It is not claiming that creation is a necessary (as opposed to freely willed) act of God.

Expression (3): it is necessarily the case that if human freedom (F) exists, then there will be a material order (A) in which it subsists. Again, this is a definitional necessity. I will argue in Chapter 4 that freedom requires materiality as its substratum. (A) is an infinite set of propositions, $a_1 \ldots a_n$, which describe the material world as we experience it objectively.

Expression (4) is a compression of two arguments. Within the set (A) there is a subset (A') defined such that any member of that set $a'_1 \ldots a'_n$ contributes to (F). However, not all examples of a' are necessary to (F). Thus, there is also a subset of (A') composed of all (a') which are necessary to (F). This set is designated $\Sigma(\Box a')$. It is argued above that Plantinga misses a major resource for his theodicy by failing to note the range, scope and size of the set, $\Sigma(\Box a')$.

Expression (5) argues that the sum of all conditions necessary to

(F) are, by virtue of the necessary autonomy of the created order, also sufficient for the possibility of natural evil ($\Diamond N$). This argument is pursued in Chapters 6 and 7.

Expression (6) summarises the entailment of ($\Diamond N$) from (G). However it claims that it is necessary. This is a difficult claim to substantiate. It is dealt with via possible worlds analysis in Chapter 8.

Part II
The Bases of Natural Evil

4

Human Freedom and Natural Evil

The revised compossibility clause outlined at the end of Chapter 3 requires that we establish a working definition of human freedom. The argument of line three of that clause is

$$\Box(F \supset A) \qquad (3)$$

Freedom depends logically upon the existence of a material order (A) and specifically upon certain aspects of that order marked as $\Sigma(\Box a')$, being the sum total of all components of (A) which are logically necessary for human freedom.

What follows is not a definitive account of freedom. It is tentative, it is broad based and makes as few philosophical commitments to particular theories as is feasible.

A HOLISTIC VIEW OF EVIL

My theology of evil shares with Alvin Plantinga's the underlying theme that the very bases of freedom are also the bases of evil. In this, it differs from those theodicies which claim that evils are, individually, allowed by God for some greater good. The latter need to justify the existence of each evil as a cryptic source of good; the former needs to describe a world view wherein the price of God creating is the possibility of evil, such that God does not determine which evils actually exist. Plantinga's approach is holistic; Hick's, for instance, is atomistic. The key distinction is that the holistic approach offers a description of a world containing evil which exists, instance by instance, independently of the active will of God.

Plantinga's argument is that God had of necessity to create the sort of world which contains the possibility of evil if he were to create free humans. The holistic model leaves open the objection that God, as personal and loving, could have preferred to refrain

from creating. Is this so? The question at least has the virtue of focusing upon a doctrine of God whose creativity is active and, in the religious sense of the word, good. The God of Christian tradition has not, by and large, been construed as one who is helplessly bound to create. To this extent, God is indeed responsible for evil.

Should God have created? The problem of middle knowledge – the Molinist question as to whether God knows the truth value of counter-factual conditionals, including therefore the truth value of possible-worlds propositions – casts doubt upon any assertion that God could have foreknown the outcome of creation. This argument has greater technical interest than actual power. If the absence of divine middle knowledge is granted, then we can say that God in no way knew the actual and single outcome of creation. However, it is unreasonable to presuppose that God would not, so to speak, have been able to make a rough estimate of what would be the possible outcomes. Moreover, the question of middle knowledge is based on a model of creation wherein the creator begins a process and then stands back to await an outcome. The Christian God is deeply involved with creation. He can arguably influence the outcome *in medias res*.[1] Therefore, if God lacks middle knowledge, he cannot be accused of knowing about specific evil outcomes, nor about the actual degree of evil, with certainty. Yet, he would still have known the level of risk in creation.

Is that risk worthwhile? In order to ascertain whether a risk is worthwhile, we need to have made a moral or aesthetic decision and then apply to it a set of facts. We need to decide what level of risk is classifiable as worthwhile and then know enough about consequences to put this principle into action. Dostoevsky's oft-quoted example of the deliberate torture of children is interesting. It is laden with emotive rhetoric. Is it worthwhile that even one innocent child should suffer greatly? The affirmative answer seems heartless and dehumanising. Yet, the affirmative may just be right. When a general sends his own men into action for what he takes to be a just cause, is it right that even one of his men should die in slow agony? Of course, the answer is that it is possibly very right. Ineluctable and vile consequences can be allowable products of right action in human society. The holistic approach should not be contaminated with atomistic thinking. It is not that God could have prevented Dostoevsky's infant from suffering as if that event were not part of a causal web, but rather that no creation is the alternative to even one example of human suffering. I know of no

trustworthy grounds upon which to judge whether no creation would be better than the world as it is.

This question apart, the holistic approach saves us from dealing with evils individually. We need a definition of human freedom which precludes the atomistic model. This kind of definition will be grounded in the web of the created order, such that to remove or alter any major element in that web will likely impair freedom.

NATURAL AND MORAL EVIL – A QUESTION OF STRUCTURE

Although this book shares with Plantinga's thought a holistic model of evil, it rejects emphatically Plantinga's notion of the causal relationship of freedom and evil. The argument is structurally different from Plantinga's FWD.

Plantinga's argument is simple:

$$\Box(F \supset \Diamond M) \qquad (7)$$

This is a simple, definitional tautology. Free-will is so defined as to include within it necessarily the possibility of moral evil, subject as ever to the falsity of compatibilism – the claim that human freedom does not logically preclude such divine action as would render all decisions virtuous. While the truth value of this argument is a matter of indifference in terms of the defence, Plantinga associates his definition of freedom with two philosophical truth claims – that free-will is indeterminate and that indeterminacy is the basis of creativity – and with one theological truth claim – that creativity is near to the essence of what it is to be human in that it is a sharing in a divine attribute. This last truth claim implies that Plantinga is concerned with the truth or theological value of his own definition of freedom in spite of the limited requirements of a defence and that he is not convinced that indeterminate free-will as the basis of non-determined human decisions is theologically adequate as a justification of evil. Thus, it is that he briefly invokes the notion of creativity. It is that people may be creative and, hence, 'as gods' that $\Diamond M$ exists.

In contrast to Plantinga's argument, this work is specifically concerned with the truth values of its terms. The argument is in three clauses.

$$[F \supset \Sigma a'] \wedge [\Sigma a' \supset \Diamond N] \quad (8)$$

$$P(N) = [0 < P(\sim N) < P(N) < 1] \quad (9)$$

$$[(N \supset \Diamond M) \vee (F \supset \Diamond M)] \vee [(N \supset \Diamond M) \wedge (F \supset \Diamond M)] \quad (10)$$

The first argument states that freedom logically entails there being a set of physical conditions which themselves entail the possibility of natural evil. The main difference between this work and Plantinga's is that natural evil rather than moral evil is basic. Conjunct (8) implies that (F) and (N) share a causal basis; it is likely, because of the nature of (N), that this is a physical basis. This common basis can be empirically assessed within this world.

Equality (9) interprets (N) via the notation of the probability calculus. The general meaning of the entailment ($\Sigma a' \supset N$) is clear enough. We shall discover that the modality of (N) is a severe problem. On the one hand, there is no reason to suppose that so strong a statement as ($\Sigma a' \supset \Box N$) is defensible. On the other hand, ($\Sigma a' \supset \Diamond N$) is too weak. It is certainly not the case that $\Sigma a'$ merely renders a small possibility of (N). The argument is that (N) is virtually inevitable on stochastic grounds (that is, grounds of physical probability). The term

$$[0 < P(\sim N) < P(N) < 1]$$

begins to express a crucial notion. It says that, while not certain, (N) is more probable than ($\sim N$). (N) is not strictly necessary, but, it would be counter-intuitive to argue that, given ($\Sigma a'$), (N) might in practice not have existed. The source of this apparent lack of clarity is in the notion of causality itself. In paying attention to the world as it is, we will alight upon the fact that the physical and biological sciences have conceptual problems with causality. For the moment, let the term $[0 < P(\sim N) < P(N) < 1]$ stand for the notion of probabilistic causality. Broadly speaking, ($\Sigma a'$) raises the probability of (N) and does so to such a degree as to enable us to say that ($\Sigma a'$) causes (N). (Probabilistic causality is a subject of vigorous debate within the scientific community.[2])

Disjunct (10) states that some instances of moral evil may be covert instances of natural evil, but that it is not possible to deny, *prima facie*, that human freedom may be a sufficient cause for moral evil, without invoking any physical substrate. In this context, ($F \supset \Diamond M$) is similar to Plantinga's argument, but cannot be easily disentangled from the pervasive influence of the propensity for natural evil.

It is within this structure that our definition of freedom must be developed.

Throughout, I differentiate between moral and human evil. Moral evil is that notion of Plantinga's that people do wrong because they make the wrong ethical decisions. Moral evil is closely bound up with free-will and, in Plantinga's case, with indeterminate free-will. By contrast, human evil as discussed in the final part of this book is a complex and difficult phenomenon concerned with human action bound into the causal web of evolution. Human evil is more akin to natural evil than to contracausal moral evil, in that it is closely linked to the causal structures of the natural world, yet it is not reducible to natural evil.

TOWARDS A DEFINITION OF HUMAN FREEDOM

The above argument indicates that the truth claim of any definition of freedom is crucial. However, it is not a certain, deduced truth, but rather arrived at in part through inductive argument and therefore best thought of as having a high probability of truth. This concern with truth values means that, although I have analysed the general argument ($F \supset N$) in terms of material implication, this form of entailment is too weak. It is not that I wish to hypothesise (F) in order to assert the rationality of the logical relationship ($F \supset N$). I wish to claim that human freedom is in fact such and such, with the result that natural evil does depend upon it and then to argue that this is necessarily the case. Our definition of freedom must be credible and probable.

Let us start from the oft-heard intuition that to be free is to be truly oneself. This 'being true to oneself' is set out rather primitively in the standard philosophical accounts of the liberty of spontaneity. I am free when I experience no inhibition in the expressing of my desires. This concentration upon desire is impoverishing. If desire is close to animal drive, then the definition is untrue; we often hold basic desire in contempt favouring 'higher' values. If desire comes to mean anything we seek behaviourally, including those 'higher' values, then the definition tends towards tautology. Being true to oneself is not so easily outlined. It is certainly culture relative. In late twentieth-century, post-Christian, developed society, it is highly libertarian and individualistic. At worst, the self to which one is true becomes rootless, morally and

spiritually bankrupt and the sort of freedom shallow indeed. In other cultures – here the Balinese is a good example[3] – individualism is antisocial and so being true to oneself is about being true to the social group over the self as the West understands it. Similarly, much religious thought sees being true to the self as being true to the other. The *Book of Common Prayer*, following the Sarum Rite *inter alia*, invites us to pray:

> O God, who art the author of peace and lover of concord, in knowledge of whom standeth our eternal life, whose service is perfect freedom; Defend us . . .[4]

Augustine instructs that freedom is obedience: *Dilige, et quod vis, fac.* Part of Christian mysticism has been to investigate the sense in which the self is lost in the Beloved, either unitively or individuatively. The intuition linking freedom with a vocation to be 'truly human' is powerful; it is no more specific about the content of the notion of freedom.

Since no definition of freedom holds a consensus, how might a working definition be outlined for the purpose of our argument?

Plantinga's definition of freedom as indeterminate free-will is interest driven. He uses this definition because, firstly, he wants to work within that orthodox, analytical framework that has been shaped by traditional debates about free-will and determinism, secondly, because it is a manageable definition in terms of the limited needs of the FWD and, thirdly, because he apparently believes that indeterminate free-will is necessary for human creativity as an expression of the *imago dei.*

Our working definition must also be interest driven.

One of the aims of this book is to argue that it is likely that natural evil is a logical consequent of the existence of such freedom as is required for humans to enter into mutuality with the God of love, that both are dependent upon fundamental characteristics of materiality and that the material conditions which are necessary for freedom are sufficient for natural evil.

This interest-driven definition of freedom will therefore concern itself with four aspects of what it is to be human and free. Firstly, I take it to be true *ex hypothesi* that human beings are material; that they are dependent for their being upon the structures of energy and matter which are gradually opening up to the gaze of natural science. I will contend that to be immaterial would be to lack

freedom; freedom is about what it is that our materiality gives to us that we would lack if we were immaterial beings. Secondly, the definition must be such that those who are free in its terms must be capable of mutuality with God. This I hold as a theological *ex hypothesi*. Thirdly, humans exist within time; God is eternal. Creation includes and perhaps subsists in the creation of time. Our characteristically human freedom is freedom-within-time, albeit that much eschatological thinking envisages an ultimate freedom from time. Fourthly, we, the human race, exist corporately across space and time. It is very difficult, if not impossible, to imagine a single human existing in total isolation. We are context dependent for our very being. Humanly, we exist only through the being of others. While this is an obvious enough biological truth, it is even more an existential truth. As a species, our existence is dependent upon the ecological health of our environment. A recognition and acknowledgement of both our existential and ecological context dependence counters undue individualism.

FOUR CONSTITUENTS OF FREEDOM

Materiality

Most of our lives are spent in superficial awareness of the material world. Many would assert that the material world as we experience it is the only reality. This reality is contingent.

It is my contention that what defines materiality is not so much our understanding of matter and energy as contingent entities, but rather as a necessary quality which could be instantiated in many different ways. Possible worlds semantics can refine our understanding of materiality, of its connection with human freedom and divine omnipotence.

Materiality is a solution to a specific problem to do with divine omnipotence. To expound this, let us conceive of a possible world in which God creates only immaterial beings. Because God is omnipotent and because he creates *ex nihilo*, then immateriality implies that every aspect of a creature stems from the active, divine will. Finite mind is a structure. It is about the interaction of input with innate architecture leading to output. If each detail of a creation flows from God, then each detail is divinely predetermined. A totally predetermined input into a totally predetermined architecture

would result in a totally predetermined output. Where the determinism is divine, then there is no practical consequence as to whether the architecture involves rigid causality or not. In any case and in every detail, what God wants happens. It is not at all clear that such a predetermined interaction would even be recognisable to us as 'mind'. This picture of the immaterial, finite mind is of a non-punctiliar structure of which each and every constituent is immediately dependent upon the divine will. This possible world is indeed alien to everyday experience. Creaturely mind unshielded from divine omnipotence is, I contend, logically unable to exist. Materiality is that abstract quality, necessary to mindedness, which sets the required ontological distance between divine omnipotence and free creatures.

What about a punctiliar mind? Such a notion as a mind which has no extension in time and space is self-inconsistent, for mind is process and process requires extension. Punctiliar mind would be static. Mind is dynamic. We see this more clearly when we consider the concepts of mutuality, responsibility, responsiveness and relationship which inhere in the Christian idea of a personal God. Of course, we need not conclude that mindedness only exists through extension as we understand it in terms of time and space in α. Materiality is not material existence as it is instantiated in α alone. Materiality is a highly generalised property instantiable in a non-finite number of possible worlds. The generality of materiality must be stressed. The thesis is not merely that material order in α happens to lead to (N). It is that, by definition, all instantiations of materiality lead to ($\Diamond N$). ($\Diamond N$) is then necessary in any possible world in which there exists both God and free creatures.

In short, immateriality is such that the consequent dependence upon God in each and every detail is total. It then possesses no novelty. It cannot diverge from its all-encompassing source. It is sinless. It is incapable of autonomy; self-realisation is probably meaningless for there is no self to realise. Immateriality is wholly determinate structure. Punctiliarity – that is, non-structuredness – is in any case a notion alien to mindedness. Therefore, materiality is that quality which allows extension of the mind in time and space (or some such functionally analogous extension), thereby according to it autonomy and thence those other qualities necessary for mutuality.

Materiality implies creatures who possess autonomous centres of being, which stem from autonomous structures. Whatever else may

be the case, these structures do not correspond one-to-one with the will of God. God-as-Omnipotent-Divine-Architect is incapable of such creation.

The final paragraphs of Michael Polanyi's (1973) *Personal Knowledge* set out eloquently the claim that mindedness requires radical novelty. Polanyi sees mind neither as immaterial nor as physically innate in primitive matter. It is unrealised potentiality, making its own way into being. Its autonomy in self-creation makes this an attractive account of the genesis of mind to theist and atheist alike:

> Can we see then all the works of the human mind invisibly inscribed already in the configuration of primeval, incandescent gases? No, we cannot; for the capacity of coming to life is due to the power of a field to consolidate centres of first causes. Each such centre bears a possibility of achievement which, however limited, uncertain and unspecifiable in its outcome, characterises this centre as an essentially new and autonomous prime mover. The centres of individual beings are short-lived, but the centres of the phylogenetic fields of which individuals are offshoots go on operating through millions of years . . .[5]

Mutuality

Materiality corresponds with ontological distance.[6] Mutuality exists where those with sufficient ontological distance enter freely into relationship. Consider the relationships that exist at different stages between a mother and her child. Within the womb, there is total dependence but little mutuality. Indeed, neither person involved has yet been freed from the natural processes which bind them together involuntarily, although it might be conceded that the mother perhaps entered freely into her pregnancy. Such is ontological distance lacking that we find it difficult to think of freedom and mutuality in this relationship. There is even a tradition of legal and moral thinking which denies personal existence to the child. It is part of the mother's body and therefore subject to her will, even to the extent of her aborting its life. Once born, mutuality comes slowly into being. Each responds to the other as another person. Awe is a common response to the newborn. There is a certain kind of freedom. The mother may choose how to relate and how deeply to relate, yet both are under the sway of strongly instinctive behaviour. Growth towards human maturity is about the winning of

independence from the parent, so as to return into a loving relationship which gradually ceases to be markedly asymmetrical. Mutuality and strong asymmetry are not compatible. Ontological distance concerns a divine giving of symmetry to the (potentially) least symmetrical relationship – that of creator and creature, of the eternal and the finite.

Mutuality is complex; not least that with God. It is an *ex hypothesi* plank of this book that divine–human mutuality is one of the purposes of creation. (An interesting example of mutuality as a basic category of theology is found in Grey (1989), in particular Chapter 5.)

Mutuality depends upon the ontological distance stemming from materiality, together with a separation from the point of origin which allows for a mature return to symmetrical relationship where previously there had been asymmetry. This applies to mutuality with both parent and God. This, in turn, relies upon extension through time, complex process and the ability to interact with a rich environment. (A closer analysis of mutuality is offered in the Appendix.)

Temporality

Three meanings of time are interrelated – time as subjectively experienced, time as against eternity and time as a physical aspect of materiality.

It is the first of these, existential time, which contributes most directly to our understanding of what it is to be human. This depends upon physical time – that which was created at the beginning of the material universe – and may well depend upon the theological notion of time as well, but our experiencing of our own humanity is in terms of subjective time. It is this sort of time which God creates in order to accord freedom and so it is this sort of time which is to offset the cost of evil. A brief and accessible discussion of human time is to be found in Paul Brockelman's *Time and Self; Phenomenological Explorations* (1985). This book illustrates some key connections between our materiality and temporality on the one hand and our ability to enter into mutual relationships with others and with God.

Brockelman's phenomenological approach to human temporality looks to the works of Heidegger, Merleau-Ponty and Ricoeur in 'evoking and articulating the *experience* of self *to that self*',[7] Like all phenomenologists, he owes his basic insights to the work of Edmund Husserl, but dissents from Husserlian phenomenology in his notion

of truth. Brockelman's approach to the nature of truth, contrasted with Husserl's, illustrates why his phenomenology of 'self' might advocate itself for our purposes. Husserl had assumed that there is an underlying essence (*Wesen*) to knowledge and truth and that this could be attained by a process of bracketing off our false and subjective assumptions. He believed that it was possible for the phenomenologist to get back to the things themselves (*'zu den Sachen selbst'*).[8] The so-called existential phenomenologists do greater justice to the problem of communication, whereby truth discloses itself via the excess of meaning inherent in analogy. Husserl has presumed that language was in principle capable of conveying truth. The existentialists not only deny this, but use the inadequacy of literal language as a route to the defining of truth. Since literal language will not contain all that matters, analogy and metaphor are essential. It contains a surplus of meaning (Ricoeur's phrase) over what is or can be said literally. Truth is disclosed in the struggle to express. Truth is part of a dynamic, a process and is not a substantive quasi-object to be discovered beneath a veil of obscurity. Disclosure theory of truth, rather than the Husserlian correspondence theory, stresses that our life and being centres upon a flow, a dynamic, rather than a punctiliar self. Self, like truth, is composite, synthetic, non-static. The self, who we are, is to do with experiencing, reflection and expressing which happens within time. Time is indispensible to self, just as it is to truth.

Brockelman's approach to the general description of the self to the self is to begin with a number of classic, philosophical problems. The self is experienced as a unity over time. The fact that this is puzzling is important. Were the self a substance like the Platonic soul, then its unity would be that of mere continuity-in-being. However, that is clearly not the case, for the phenomenologist, who will not accept an ontological argument in the place of human experience. We experience ourselves as both a unity over a span of time and also different over time. The self is experienced as an identity. We do not need to compare ourselves, on waking, with the person who went to sleep to know that we are identical. The self is capable of self-deception; it appears that one 'part' of us does not know what the other 'part' is thinking, believing or feeling at times. Our selves are fundamentally tied up with life values, the sorts of people we are or strive to be. This complex of four philosophical questions – unity, identity, self-deception and life values – forms the basis for Brockelman's temporal description of selfhood.

His dynamic model of personal being is founded in the concept that what distinguishes a person from an object is its ability to act; a person is not an object just in that an action is not an event. Selves and actions are marked out by intention:

> Actions are the realization of intentions; events the effects of causes.[9]

(I take it that this account of action is a surface account which is widely acceptable as it stands and is not a claim for agent causation in the strict sense.) Action is necessarily temporal or, as Brockelman puts it, 'Temporality is the very *form* of doing, the structure of action'.[10] Neither actions, which constitute an expression of who we are, nor events, which constitute our personal history, are punctiliar, like beads on a string, but constitute an eternal 'now' in which retention of the past and anticipation of the future are focused by a sense of the flow of time. Each 'now' with its retentions and anticipations is itself retained so that the sum total of all 'nows' are co-referential. (Retentions and anticipations are pre-conscious, not to be confused with memory.) This temporal structure upon which action depends could exist independently of human consciousness. Temporality as such does not presuppose human consciousness, but rather human experience. It is what Brockelman terms the reflective relationship which introduces the notion of consciousness. Because retention and anticipation are pre-conscious, it is a willed act to consult what it retained. Consciousness is the coincidence of experience and action. Consciousness, the ability to reflect, to recall and to do both at will, is linked with the existential notion of truth outlined above, in that truth is disclosed in the conscious wrestling to express; thence, Brockelman takes us to the idea of life values as expressed in the narratives of our lives. Narratives are quests for meaning, for truth and are constitutive of personal identity. Self-consciousness has therefore a transcendent quality, in that it unites in the eternal present all that has been with all that is possible.

Brockelman's brief and suggestive work is alive with quotations from others. The drift of his argument is well summarised in two of these. The first is from one of his mentors in phenomenology, Maurice Merleau-Ponty:

> It is of the essence of time to be not only actual time, or time which flows, but also time which is aware of itself, for the

> explosion or dehiscence of the present towards a future is the archetype of the *relationship of self to self,* and it shows up an interiority of ipseity.[11]

The second is from the American process theologian, Schubert Ogden:

> I know myself immediately only as an ever-changing sequence of occasions of experience, each of which is the present integration of remembered past and anticipated future into a new whole of significance. My life history continually leads through moments of decision in which I must somehow determine what both I and those to whom I am related are to be.[12]

What is the importance of existential phenomenology to our consideration of time?

Materiality is the quality of being at an ontological distance from the omnipotence of God. In this universe, it is instantiated as extension in time and space and is a condition of relational mutuality. Temporality is one aspect of this extension, in that it is, both as physical time and existential time, an ontological distancing from eternity-time. When in due course we examine in detail the physical substrate of ontological distance, time will be part of this, at a physical level. However, humankind is aware of its temporality at a far higher level than that of physical time; this is the experience of time opened up by the phenomenologist. To be temporal is constitutive of what it is to be self-realising, autonomous creatures.

Communality

Humans live together, such that their experience is more than, different from, the sum of their individuality. This communality is not merely the result of the interactions of free individuals who happen perforce of circumstance to inhabit the same space and time. Although much emphasis will be put in future argument upon the primitive qualities of materiality which constitute human freedom, due weight must be given to the higher order elements in human experience, which contribute to the independence of creature from creator. The fact that people live in community is not an incidental of lower order phenomena alone; it contributes uniquely to human freedom.

Human communality is highly complex and its resourcing of our freedom wider ranging than we might at first suppose. Justice cannot be done to this in so confined a space. Two examples must suffice. Both are drawn from Wolfhart Pannenberg's encyclopaedic work, *Anthropology in Theological Perspective.*

Drawing on the work of Konrad Lorenz,[13] Pannenberg discusses the function of play in human identity.[14] Although play exists in young animals, it tends to disappear in the adult and in any case it is the practice of instinctive activity which will have its serious purpose in later life. This sort of play is found in human children too. However, humans differ from the rest of the animal kingdom in that they continue their play activity in adolescence and beyond (neotony). Play ceases to be the practice of instinctive activity. It becomes free of determined goal orientation, so that the procedure embodied in the play is made available for any goal chosen later. This sort of play is, according to Lorenz, a basic posture of human life and fundamental to human freedom. It is closely related to the evolution of the brain, in that it depends upon the excess capacity of the human cortex, but also in that it depends upon the ability to will freely a particular, later goal as the purpose of the learned procedure. Pannenberg's detailed discussion of play makes clear the fact that freedom as we experience it does not reside only in the primitive qualities of materiality. As the freed creation generates complex life, so the hierarchy of Gestalten each contribute at their own level to our freedom. Play depends upon brain structure, but the contribution of play to freedom is more than a mere outworking of lower level properties of the brain. Play itself is constitutive of freedom. If communality were not part of our lives, this aspect of our freedom would also be lacking. We help to constitute ourselves as people in our play.

Later in the work, Pannenberg argues that subject formation is the outcome of the historical process itself.[15] History is, he argues, the narration of the totality of experience of the human race and, thus, is a structure of interpretation wherein we find our identities which we need beyond our individual identity. Yet, a sense of history goes beyond an imparting of corporate identity; in setting corporate goals and striving after them, we learn radically that we are not empowered to do all that we would wish, for we are as much slaves of the events we encounter as masters of our own actions. Pannenberg makes from this his characteristic theological plea for providence but his basic point stands without this. As

historical animals, humans learn that they are both contingent and dependent in their doing and being.

Summary

Materiality, mutuality, temporality and communality together form an illustration, rather than definition, of human freedom. No doubt other concepts would suffice also. However, the key point to grasp is that the four concepts reinforce each other, interact and interdepend. Moreover, they illustrate very well the interdependence of levels of human existence. Materiality is ontologically basic, but such a high-level concept as communality depends directly upon it. While the argument of the rest of this book will depend largely upon the category of materiality, the other three are no less fundamental to human freedom.

FREE-WILL AND DETERMINISM

There is a long and venerable debate in philosophy about the nature of free-will and its relation to determinism. This usually means physical determinism. This study aims to deny theistic determinism. The distinction is crucial. I will argue that my definition of freedom will tolerate more than one stance within this traditional debate. I have no need to espouse either libertarianism or determinism as such, for my approach to succeed.

In his *Systematic Theology*, Paul Tillich[16] proposes that freedom and destiny together are one of the polarities which make up what it is to be human. He insists that free-will and determinism do not comprise a viable polarity. Freedom, he argues, is ontological; determinism, epistemological. He replaces the word determinism with destiny. While Tillich is entitled to his own verbal conventions, this debate, albeit an influential one, seems to muddle the issue. Free-will and determinism can function as epistemological categories – presuppositions for the sake of subsequent argument as to the nature of the world.

However, each term can stand for an ontological proposition as well. Our interest is in the ontological category or as Jennifer Trusted[17] prefers to call it the metaphysical category.

In using the term metaphysical rather than ontological, Trusted is pointing to a logical as well as factual quality in free-will/

determinism. A metaphysical statement is about the way the world is, but it is also a general existential statement. This sort of statement is not falsifiable. The determinist can always argue that there is a deterministic basis underlying any apparent indeterminacy. Similarly, the libertarian cannot be shown to be wrong in an assertion that some causal structures are insufficient. Thus, metaphysical determinism or libertarianism offers a description of reality which is also a statement of personal conviction. Both the libertarian and the determinist will want to appeal to fact, to evidence, but each is adopting a viewpoint which is ultimately unprovable. Neither viewpoint can be arrived at solely by deductive logic. Yet, determinists and libertarians alike show a hardy commitment to their stance.

For the theologian, this is crucial. It is neither possible nor necessary to decide whether determinism or libertarianism be true. Rather, the theologian needs to investigate the compatibility of particular metaphysical commitments with the theological requirements in hand. This theology of evil is committed *ex hypothesi* to the belief that humanity exists in order to enter into a mutual, loving, responsive and responsible relationship with God. This hypothesis is linguistically anthropomorphic; for once, this is an advantage. There are real problems about what we might mean about mutuality with God. However, human mutuality can serve as a reasonably adequate model for this; most people experience human mutuality directly and constantly, albeit imperfectly. I intend to use the model of human marriage to outline some criteria of mutuality.

The following bare assertions about the nature of marriage must suffice here:

(i) Marriage involves a promise. This promise varies according to culture and religion. In Christian marriage, it is the promise to love. This is not a matter of sentiment. It is a decision. Marriage and mutuality are matters of decision.

(ii) This decision is reciprocal. Modern, Western culture tends to see reciprocity as closely related to equality. This is not necessarily the case. However, the reciprocity, whatever its basis, must be genuine.

(iii) Marriage requires a genuine intention. This is not necessarily the intention of the two main parties. In an arranged marriage, it can be the intention of the two families. However, marriage is an act rather than event.

(iv) Marriage is a renouncing of one freedom to gain another. It implies a discrimination between conflicting demands or divergent natural tendencies.
(v) Marriages require maintenance as well as inception. This involves growth and flexibility, which in turn stem from critical monitoring.

Without labouring the point, this scant model can tell us much about what we might mean concerning human–divine mutuality. I contend that this account does not depend upon one particular doctrine within the free-will/determinism debate. The complex of concepts enshrined in the model – decision, action, reciprocity, intention, discrimination and critical monitoring – are *prima facie* describable under the terms of differing theories within this debate.

DETERMINISM OR OTHERWISE?

Determinists and libertarians have an infuriating tendency to accuse each other of incoherence. Perhaps this flows from the fact that each viewpoint seems somehow counter-intuitive, when stated formally. The determinist is faced with giving an account of freedom of will as an undeniable experience without admitting that there is undetermined will. The libertarian is faced with showing what the notion of an action being undetermined might mean and what it might contribute to our understanding of human freedom. Each is working with an agenda set by the other, within the general philosophical dialogue.

It is not the role of this work to adjudicate between these two positions. I believe that so-called soft determinism and certain forms of libertarianism have much to offer, each acting as a corrective to the other. However, I shall preclude from further discussion hard determinism and that sort of contracausal libertarianism represented by Plantinga.

We can now proceed to demonstrate that a soft determinist such as Daniel Dennett can offer, *prima facie*, an account of human agency which is compatible with human–divine mutuality, but that a libertarian such as John Thorp still has a residue of objections, which, if sustained, would present an alternative account of human agency which is still compatible with human–divine mutuality.

Brand Blanshard has offered a definition of indeterminacy as follows:

> He [the indeterminist] is not saying that there is any event to which some nameable antecedents are not necessary; he is saying that there are some events whose antecedents do not make them necessary.[18]

The determinist, then, believes that each event has a set of antecedents which renders that event necessary (saving only a rare class of microindeterminate events). All events are determined by their antecedents. There are no events of everyday life which are independent of the determining influence of their antecedents.

If this is true, Daniel Dennett claims that our experience of being free to take decisions is still real.[19] Our free decisions are not indeterminate, but determined by their antecedents. Determinists refuse to countenance a liberty of indifference. All freedom is by liberty of spontaneity. Dennett claims that the question, 'Could he have done otherwise?', is a deceptive and difficult one. We are inclined to reply, 'Of course he could!', except for situations of evident restraint. This intuitive reply is a misunderstanding of the question. He rejects what he terms the intuition pump as increasingly exotic and therefore unhelpful. (By the phrase 'intuition pump', Dennett refers to the habit of indulging in more and more bizarre counter-examples which are not well-grounded in reality. He typically criticises H. Frankfurt (1969) for this, although I think that the latter is less guilty than others.) Instead, he questions the meaning of 'otherwise'. Of course, if the circumstances had been different, the outcome would have been so. That is logically trivial. The point is that, if all circumstances had been the same, he could not have done otherwise. The indeterminist must agree that, unless there be true randomness involved, the outcome will be the same if *all* circumstances are the same. This includes the circumstance of the process of decision itself. For the libertarian, this is again trivial, for it is tantamount to saying that, if he had made the same decision, he would have made the same decision. The matter of fact which is at stake is whether human decision, human agency, is in any way different from other contributory factors. The libertarian characteristically asserts that human agency is different. The determinist simply says that the very act of making a decision is determined by external factors. Human agency has no proper causes. Herein is the metaphysical difference between the two camps.

Can determinism fulfil our theological criterion of mutuality?

While each approach has its weaknesses, determinism can *prima facie* do so.

The determined decision is still free, in the sense that it is a proper expression of its determinants. It is coherent and therefore meaningful. The outcome of the antecedents may be necessary, but the spontaneity of their expression is satisfying.

It is possible to see the decision as reciprocal in theological terms, although it does mean the use of a problematical argument. Reciprocity – the question as to whether a person so determined would be adequately free from a God's-eye point of view – is a more general form of the question of moral responsibility. If moral responsibility is a mere illusion or a useful but arbitrary convention of social control, then this sort of freedom will not do for human–divine mutuality. It would not satisfy the theological prerequisite of the creature being able to commune with the creator, who would be eternally aware of the determined nature of all decisions, including religious decisions. Dennett's difficult counter to this is to argue that to do right is to be under the influence of appropriate determinants.[20] He elaborates on this by picturing the brain as a finite control system which is constantly seeking to eliminate its inevitable errors through negative feedback. The problem with this is the meaning of 'right'. In one sense of 'right', the argument is incontrovertible but tautologous; if 'right' has autonomy, then it is far from clear how a deterministic system can determine what determines it. The underlying human experience is clear enough. If we keep bad company, then we will get into trouble. What is there to determine the determinants? A punctiliar self? Dennett here risks an infinite regression of morally responsible entities. Nevertheless, if we grant him the point in spite of its problems, we can see that it might be meaningful to see God as in communion with a deterministically functioning creature.

The distinction of act from event and of voluntary from involuntary act is well established as part of the repertoire of determinism. The essential concept is that we own certain of the events/actions which take place, because they are coherent with who we think we are. Who we think we are and the process of judgement of individual actions is itself determinate. Voluntary actions are expressions of those higher determinants that I think of as myself, involuntary actions are expressions of constraints upon potential higher determinants and events are

expressions of wholly exterior determinants, which I do not own for my character.

Dennett's position deserves our respect and attention.

Those libertarians who, far from arguing that freedom is contra-causal, acknowledge the range of determinants described by their opponents, but insist that there is simply more to say than the determinist is willing to admit, can similarly fulfil the mutuality criterion. It is not necessary to demonstrate this point by point, as the arguments are straightforward. However, these libertarians, in rejecting the notion of causal necessity upon which the determinist relies, draw attention to a major potential resource for freedom within the human brain. This line of argument, that determinants are not of the same kind and that sometimes mental determinants are sufficient, sometimes physical and sometimes neither, is crucial to our understanding of structuredness. It is put forward by John Thorp under the heading of 'hegenomy'.[21]

Before extracting a few of Thorp's more salient points, let us consider what sort of evidence might be elicited in the libertarian's favour. The answer to this question will influence our empirical description of the human brain. I have argued above that the determinist standpoint may very well be compatible with our theological requirements. The determinist acknowledges nothing but chance and necessity. The randomness which is more than likely embodied in the synaptic structures described by Sir John Eccles *inter alios* does not itself provide a sufficient explanation of freedom. All that remains are structures which operate deterministically. The libertarian, once she has conceded that randomness is insufficient for freedom, must designate a *tertium quid* which is more than mere randomness, but which is not included in a determinist account of freedom. This *tertium quid* is that which the libertarian believes that the determinist fails to note in the nature of the world. Thorp's notion of hegemony is precisely one viable third element.

Thorp[22] argues that this third element should not be a mere transcendental postulate, but that it should be detectable. His basic point here, that the third element must be an empirical existent, is sound. Thorp is wrong in equating metaphysical libertarianism with detectability, if by 'detectable' he means that the third element can be found and identified indubitably, even in principle. Let us suppose that – as in fact I think likely – a detailed description of the human brain will allow us to describe structures which constitute this third element. What sort of description and observation would

have been made? It is certainly unlikely – perhaps inconceivable – that this third element would be a simple physical (or even non-physical) element which clearly exhibits neither randomness nor determinism but 'freedom'. Any third element will be a highly complex structure which will differ from determinate structures not in its microscopic physical properties alone but rather in its functional properties.

Whether a particular functional structure which happens to be highly complex is non-determinate will be a matter of interpretation, of biophysical exegesis. As a working hypothesis, we will presume that no structure will empirically disprove determinism. The best that the libertarian can hope for is that her description of the functioning of a particular structure will be more convincing than the determinist's account of the same complex physical structure. Thus, the libertarian's bases of freedom will not be, in a straightforward sense, 'detectable'. It might be that the libertarian and the determinist can agree that a particular set of physical properties are necessary for freedom. It is a matter of interpretation that these said properties can be the basis of an account based upon liberty of indifference. *A fortiori,* it is a matter of interpretation as to whether such properties of structures preclude the sufficiency of liberty of spontaneity.

Randomness is not a sufficient condition of liberty of indifference. One reason for this is that the former is a physical property of matter while the latter is a functional property of structure. In allowing the insufficiency of randomness, the libertarian must take care to avoid granting her opponent too much of the argument. Even though randomness is not sufficient for the liberty of indifference, it is possible that it be necessary. If not necessary, it is possible that it make a contingent contribution to the liberty of indifference. Although no account of the brain may allege that the quantum effects operating within the synapses are sufficient for human freedom, our account must consider what role this randomness might play as a contributory factor.

Let us now return to Thorp's notion of hegemony.

Hegenomy relies upon the fact that events within the mind–brain complex are often describable under two separate sets of terms. Thorp defines these two sets as 'mental' and 'neural'.[23] The term 'mental' is not to be read dualistically, nor is the distinction that between the subjective and the objective. Thorp is pointing to the fact that mental events are large-scale interactions which are more

than the sum of a number of neural events. Mental events are Gestalten. It is the key question as to what this assertion means at a deep level, but, for the purposes of his argument in his Chapter 5, Thorp confines himself to a consideration of description-types. A mental event is distinct from a neural event in that they are occurrences under different types of description. It is important to grasp that Thorp uses 'mental' and 'neural' of event descriptions, in the first instance. He is talking of how we describe an event rather than what we describe in the event. The latter may follow from the former, but we must not conflate two separate stages of an argument uncritically. Chapter 5 of Thorp's book concerns itself mainly with the linguistic stage of the argument and is, as such, non-controversial. It is in Chapter 6, under the categories of agent causation and active powers, that Thorp develops the corresponding ontological argument. Thorp's ontology rather than his linguistic analysis is controversial.

Thorp's concept of hegemony is at heart simple. He illustrates it by thinking of an individual selecting one bank note from three lying on a table.[24] Any bank note can be described in four ways – the absolute value, the value relative to the other two and its designation by the designs on its obverse and reverse. Under different circumstances, one or another of these ways is to be preferred. A free selection of a note by most individuals will be explained by their taking the note of the highest value (reference to relative value) rather than to their liking for the picture of the oil refinery on it. That particular description has hegemony over the others. In terms of the mind–brain, Thorp points to macroscopic and microscopic descriptions as having this relationship of hegemony. The former are, he alleges, mental, the latter, neural. While he remains healthily agnostic about strict causation, he argues that explanatory description can move in four directions. Causal explanation can be confined to the neural, it can be confined to the mental, it can be neural causing mental and it can be mental causing neural. Under different circumstances, one or another of these types of causal explanation holds the hegemony, in that it renders the most intelligible account of the event.

The notion of hegemony embodies a truth claim about how mind–body language functions. It is epistemological. It is unexceptional. The power of the concept is in its implicit challenge to a possible determinist belief that causation is unilinear. Hegemony language drives us to agnosticism about causation in this way. Neural–neural

causation is the simplest, in that it is causation within a relatively simple, physical system. There are few problems about seeing any particular neural–neural chain as determined. Whether it is so is merely a question of fact. Mental–mental causation is different. While we all know the power of such descriptions, it is far from clear what processes of strict, physical causation could underlie them.[25] Some determinists tend to assume that mental–mental chains are mere expressions of neural–neural chains. This parallelism is rife with problems. It is not clear that mental–mental chains can be reduced to neural–neural chains. Determinism can be guilty of blind reductionism at this point. Other determinists admit that the mental has hegemony, but asserts that this causation is deterministic by analogy with neural–neural chains. It is again not clear that this analogy holds. What sort of neural–neural causation can establish the linkages which correspond to the mental–mental linkages?

Thorp's observation about our use of language in a causal description of human brain function suggests areas where the elusive *tertium quid* may reside. Determinists characteristically do not offer a non-tautologous account of the relationship between neural and mental types of causal description. They tend to presume that the latter are equally as determined as the former and indeed are in parallel with the former. Thorp has pointed to an epistemological weakness in the deterministic case; this weakness is one which we must examine in our description of brain function.

One of the four causal types – mental–neural – makes an implicit ontological truth claim, namely that mental events can be efficient causes of neural events. This claim has by no means been accorded universal acceptance. However, there is an increasing bank of evidence in its favour at the macroscopic level. Mental states are uniformly followed by physical states such that a psychosomatic illness is best described as a physical state caused by a mental state. Like much admissible causal description, this is very imprecise. It is adequate to date for the purposes of medicine. What precisely it says is far from clear. It is tempting to see mental–neural causation as different in kind from neural–neural. This is the beginning of vitalism. Descriptions have an underlying process which is neural–neural. A conservative materialism would presume – I believe rightly – that mental–neural descriptions have an underlying process which is neural–neural. A reductionist might leave the matter there. The tantalising question is this. Presuming that there is not one-for-one mental–neural parallelism (and how could there be?), what sort of

neural–neural causal chain could account for the mental–neural chain? *A fortiori*, what sort of neural–neural chain could account for the mental–mental?

Hegemony is a concept which helps us locate difficult questions which, it seems, that determinism is characteristically unable or unwilling to deal with satisfactorily.

In his sixth chapter, Thorp essays an account of the ontological claims which a libertarian must make. His two key notions are agent causation and active powers.

In postulating agent causation, Thorp is arguing that the agent has the power to decide and that in this an agent differs radically from an event. An agent differs from a non-agent in possessing active powers. A hard determinist would say that in this claim Thorp is wrong at all levels. Most other people would grant that this description is one which we could own at an everyday level. It is not, however, an adequate piece of ontology. It simply begs the question, as it stands. If Thorp's description of agency carries any weight at all, then it does so for one of two reasons. If Thorp is claiming that active powers are irreducible entities – the ghost within the machine – then he is committed to a vitalist ontology from which I would dissent. However, it is possible that his description of agency in terms of active powers is one level of description of a highly complex neurological process. In describing brain function in Chapter 6, I will be looking to account for the apparent non-reducibility of mental–mental and mental–neural causal chains in terms of highly complex neurological structures.

If libertarianism is correct, then Thorp's concept of hegemony will have directed our attention to the possibility of complex neural structures which can generate a functional *tertium quid*, a third element intermediate between determinism and randomness, in which resides our freedom. If determinism is correct, then it is a fair working hypothesis that these same complex structures, albeit determined, are also bases of human freedom in the sense that the determinist means that word.

SUMMARY

Human freedom is intimately related to the human brain and its structures. I postulate that freedom is equatable with such qualities as materiality, mutuality, temporality and communality. Underlying

these is the dual concern with human–divine communion and with humanity's freedom from divine determinism. The model offered need not be inviolable. Other variations upon the theme would do as well. Materiality and temporality are the pre-conditions of mutuality and communality. They imply extension in time and space or its functional equivalent. The next stage of the argument is, firstly, to demonstrate that the human brain can only embody human freedom because it is so extended in space–time and, secondly, to show that the means of this extension in space–time also happen to be probabilistic causes of natural evil.

5

On the Use of Scientific Arguments

Chapters 6 and 7 describe the human brain and its setting in the process of evolution with a view to illustrating two general claims.

(i) That there are some substrata of human freedom which are arguably necessary to that freedom and which are also sufficient for specific examples of natural evil.
(ii) That creation is a seamless robe, such that the removal of one aspect of the contingent order of creation could not be achieved without wide-ranging and perhaps incalculable effects.

It may have been possible to construct some general, philosophical arguments towards this end. However, a close description of reality as we know it has a number of strengths. I claim that the argument that God could have done better on any given occasion is näive; it stems from a lack of careful reflection upon an analysis of the way the world actually is. Therefore, examples of such analysis are powerful in countering this näivety. The effects of such description is cumulative; it has a sort of rhetorical force which ought to build up over a considerable length of argument. It appeals to our imagination as well as our intellect. In turn, this means that, in as much as arguments accumulate rather than concatenate, a dubious argument is not at all fatal to the whole procedure. If one particular argument fails, then it can be replaced by another. This inductive procedure, while never, of course, conclusive, is less vulnerable to detailed criticisms than would be a deductive chain of argument in which the loss of one link might conceivably be fatal to the whole enterprise. I contend that the basic method of argument by illustration has much to commend it.

However, it has difficulties. This chapter aims to clarify and, hence, hold in sound perspective a number of potential problems.

This chapter contains summaries of and references to arguments used in Chapters 6 and 7. These summaries are somewhat dense. I therefore

suggest that the reader reads this chapter before Chapters 6 and 7 and then rereads it after these two chapters.

All branches of learning progress and change. At any given time, some areas of a discipline may seem to be quite secure while others may seem to be fraught with difficulties or quite simply to be subject to much (perhaps quite exotic) speculation. This is true both of philosophy and natural science. In Chapter 4, I acknowledged the need to refrain from taking up one position in a particular debate so as to render it a *sine qua non* of any future argument. Thus, my working definition of freedom is in the first instance equally applicable to the soft determinist as it is to the Thorpean libertarian. In general, it is proper to avoid unnecessary controversy when drawing upon material from another discipline in a theological argument.

This conservative approach is not always easy to adhere to. Sometimes, that which was thought to be secure and incontestable in one period of history is overturned at a later time. (Such is the story of modern physics.) Sometimes, the very flux of debate is about whether a theory should be regarded as secure or not.

It is certainly not the case that all my examples in the following two chapters are equally incontrovertible. Therefore, it is important to identify different sorts of material drawn from natural science in order to clarify their status within the arguments used. Some material is indeed apparently incontrovertible; other material is speculative. What matters is that the latter is used for a definite purpose and is safe, in that if the example fails, then the general argument is not ruined by it.

I will examine three different sorts of argument from science, used in the following chapters, so as to clarify their logical status. These are the existence of earthquakes, the function of the neural net within the brain and inflationary theories of the very early universe. Lastly, I will clarify my rejection of the single universe version of the strong anthropic principle.

THE EXISTENCE OF EARTHQUAKES

My material on earthquakes contains two different arguments. The first argument is that earthquakes are, in general, an indispensible element in the evolution of a planetary environment which will generate human life. Human life and earthquakes are causally related, in that earthquakes are a *sine qua non* of the sort of planetary

environment which we experience on earth. The second argument is that earthquakes are, arguably, necessary to the detailed outworkings of macroevolution as it has been experienced on earth. The status of these two arguments and of different elements within them, is complex.

At no point do I make detailed reference to seismological knowledge. My discussion of earthquakes presupposes nothing more than some school geography. The scientific content of the arguments is therefore basic and, for all practical purposes, incontestable. This is scientifically safe ground.

The first argument – that earthquakes must form part of the life of our environment at such a geological time that humanity experiences seismological disturbances with some consequent suffering – combines elementary logic with elementary science. It would be the case that, had I ignored some relevant information about earthquakes, then the link between the evolution of higher life forms and the occurrence of earthquakes at a particular time relative to the appearance of mankind might be broken. Yet, until such new information is brought to my attention, the argument is secure.

This argument, however, invites two separate conclusions, which are of very different logical status. The first and most obvious conclusion is that the emergence of life on earth, as a contingent fact, depended upon a process which involved earthquakes, with the result that the suffering consequent upon seismic activity has a common origin with the life that experiences the suffering. This conclusion is secure but limited. It is initially only about that contingent state of affairs which corresponds to the earth as we know it now. However, there is a second invitation to a conclusion lurking within the argument. It is, of course, of little theological interest that the present state of affairs is as it is unless this fact suggests that the *status quo* is, in possible worlds terms, either highly likely or even necessary. Therefore, the argument about the way the world is conceals a suggestion that, because of the complex interconnectednesses of nature, it is difficult to conceive of things being otherwise.

The status of this second conclusion, itself a covert implication of the first conclusion, is less secure. Its logical status is not dealt with until Chapter 8. However, it must be emphasised that its less secure status stems from its logical claim about the probability that the *status quo* is necessary; the scientific background to the argument can, for practical purposes, be regarded as incontestable.

The first argument, with both of its conclusions, concerns the

general relationship between the evolution of intelligent life and the existence of a seismically active biosphere. The claim is that life is part of a long process of cosmic evolution. The biosphere's own existence and, hence, the existence of seismic activity is part of the very same process. The science of this claim is elementary.

Not so is the science involved in the second argument from earthquakes. I point out that it is a respectable but contestable view of some evolutionary biologists that the environmental trauma caused by seismic activity is both contingently a prime cause of macroevolution and, thus, by invoking the notion of functional equivalence, may turn out to be necessary to macroevolution. In other words, it may well be the case that macroevolution needs a traumatic environmental shift to induce speciation. While earthquakes may not of themselves be strictly necessary to the process, then some functional equivalent producing a similar degree of natural trauma may be necessary.

Not all biologists would agree with this account of macroevolution. What, then, is the structure of the argument?

It is a hypothesis, but a reasonable one. The argument is that *if* this account of macroevolution is adequate (it might well be so, but there is no consensus), then it is clear that there is an even more intimate relation between earthquakes and the existence of intelligent life than would otherwise be the case. However, if the hypothesis proves false, little is lost, because the first argument about the interdependence of intelligent life in general and a seismically active environment still holds.

In short, here is an argument which is scientifically speculative – but speculative in a responsible way – which, if it holds, reinforces an already existing inductive argument, but if it fails, takes nothing else of value with it.

THE FUNCTION OF THE NEURAL NET WITHIN THE BRAIN

The concept of the neural net refers to an ensemble of individual neurons which combine three particular qualities; they are complex, they involve feedback routes, both positive and negative, and they include the potential for radical indeterminacy within limits at each synapse.

Here is a case in which the scientific status of the evidence is not particularly contentious, but the use made of it is. The complexity

of a neural net – any neuron might make of the order of four hundred synapses – and the 'wiring' structure which enables feedback are beyond dispute. That synapses are of such a structure and such a scale as to be subject to quantum uncertainty and the fact that the firing potential of any given neuron seems to incorporate a band of indeterminacy is well attested over a quarter of a century, beginning with Eccles (1964). While we might be more conservative of an uncritical reception of Eccles' research than of secondary school science, nevertheless his detailed and respected description of the synapse has stood the test of time in an otherwise fast-changing discipline.

Yet, each of these pieces of description are but items of information about the functioning of a large and ill-understood whole. It is necessary to avoid claiming too much for this information, however much its facticity might be a matter of consensus.

The quantum indeterminacy of the synapse is a case in point. It might be claimed that the existence of radical indeterminacy – of a 'looseness' which runs counter to simplistic, hard determinism – is sufficient to attribute to these structures something called freedom. This is not merely naïve. There is involved here a confusion of categories. Any structure which includes quantum indeterminacy is 'free' in the sense that it is not strictly determined. This use of free seems to resemble Plantinga's oft-criticised use of the same word. Whether or not it should be applied to neural nets – I think it should not – it is certainly not the sort of freedom which we attribute to human beings.

This elementary error has been made even more tempting by Eccles' own dualism. Eccles identifies this 'looseness' with what he terms the liaison brain; it is for him the point at which the immaterial mind influences the material structure. If one allows dualism, this is at least a subtler point. The freedom resides in the immaterial mind; the indeterminacy is a point of communication between mind and brain and not the source of freedom itself. I have doubts as to whether quantum indeterminacy would be sufficient for the necessary liaison, but, in any case, the whole hypothesis is ruled out by the prior commitment of this book to monism.

What then is being claimed for the scientific material?

One of the problems of human freedom, especially in the Thorpean model, but also for some soft-determinists, is that the brain, a physical structure, needs to be flexible in a way that we do not normally associate with machines, for instance. If it is illegitimate to

refer to the ghost within the machine, then the machine itself, *pour ainsi dire*, must be rather special. My claim is merely that the three elements of complexity, feedback and quantum indeterminacy are such as we might expect to find on a small scale in an organ which on a large scale has allowed for the emergence of mindedness. This is a speculation, admittedly, but one which is open to detailed debate and one which is fairly conservative in its claims. At no point is there the intention to equate freedom with indeterminacy, for that would be reductionism.

INFLATIONARY MODELS OF THE UNIVERSE

In Chapter 7, I give some consideration to those cosmological theories which include, in the model of the very early universe, an exponential expansion usually referred to as inflation. Inflation is hypothesized to deal with elements of the fine-tuning problem usually referred to as the smoothness and flatness problems. It answers the question 'why is the universe both homogenous and isotropic on a large scale?'. The importance of this is that these qualities are finely balanced requirements of a life-producing universe.

Inflationary theory is respectable in that it is receiving serious consideration by mathematical physicists amongst others. (I note that the third chapter of Leslie (1989) gives considerable space to an even-handed discussion of inflationary theory without being committed to its veracity.) Yet it by no means holds a consensus within the scientific community, nor is it free from acute theoretical problems of its own. Why then refer to it at all?

Inflationary theory is a fine example of a solution to some of the elements of the fine-tuning problem. It claims that, in order that the universe should have been rendered capable of generating intelligent life, it was necessary that an unimaginarily vast process should overtake it in its earliest aeons. This fact, at the level of both logic and imagination, renders futile the claim that God could have done better. Moreover, it does so by referring to a process which radically affected the very quality of what existed with total generality.

Let us look at this type of argument through a parable. A vast number of dwelling caves are thrown up by a massive earthquake. The inhabitants are grateful, save only for one who complains that, if he had been designing a house, he would not have put in large doorsteps.

The reference to inflationary universes has this force. Inflationary models are hypotheses which are not necessarily secure. However, they are also good examples of a whole family of arguments concerning the fine-tuning problem. Such hypotheses illustrate the inappropriateness of the claim that God could have done better, because they are detailed examples of the complex requirements of the creative process. If the inflationary hypothesis proves false, then the other of the fine-tuning problems will serve a similar purpose.

THE ANTHROPIC PRINCIPLE

The anthropic principle states in general a truism which seems at first sight a little surprising. We observe a universe which against all odds supports life. It is a point for debate as to how surprising this ought to be. Yet, we only observe this universe because we are here to observe it. 'Anthropos' is not the dispassionate observer after all, but is at the heart of the matter.

Davies (1982) describes the weak and the strong versions of this theory. The former stems from a positing of multiple universes, such that the existence of this universe ceases to be surprising on statistical grounds alone. The latter posits God and is a variation on the argument from design.

The literature on this subject has been rendered somewhat confusing by the fact that Davies (1982) misrepresents the work of Carter[1] in his definition of the weak and the strong anthropic principles. The distinction between the weak and the strong principles – that the latter is universe-indexed while the former is region-indexed – is discussed at length in Leslie (1989)[2]. Davies *inter alios* therefore rejects the strong principle because he believes it is necessarily theistic. Leslie (1989) rightly objects that this is not the case. Only the strong, single universe account is necessarily theistic and it is this which I reject.

Both Davies (1982) and Hawking (1988) accept the weak form (to revert to their terminology) because they reject *a priori* the possibility of God. However, this book accepts *ex hypothesi* the existence of God. It is important to make clear why I do not accept, for the purposes of this argument, the strong, single-universe option.

This would state that God pre-set all the necessary conditions for life and that these divine actions are sufficient explanation for the thisness of our universe.

Davies' analysis is an over-simplification. Leslie (1989) has a more telling analysis to offer and incidentally makes a worthwhile case for the strong, single-universe option. Leslie points out that while the many-universes option is open to the atheist, it is also open to the theist. God might well instantiate the present universe by creating a multitude of universes. Let us note that the many-universes option posits a similar set of physical events whether it be theistic or not. I am content, for the purposes of this book, to espouse *ex hypothesi* the weak principle in its theistic form.

It may be that the strong, single-universe option is correct; after all, by ignoring it, I lose nothing. However, the single-universe option seems to me to be a hypothesis with difficulties that would possibly touch the very heart of this study.

If God could have set all the parameters necessary for life in the initial state of the universe, at its α point, then the single-universe option would have few terrors. However, I am far from certain that it is possible that all of the necessary parameters which we observe could be informationally contained at the α point. In fact, Michael Polanyi[3] has argued that this could not be the case. If Polanyi is right, the single-universe option would mean that God would have needed to set at least some of the fundamental constants after the process had begun. This is unhelpful not only because interventionist models of God are theologically unpopular, but also because it raises the following question: If God could intervene at that point in respect of fundamental constants of physics, could he not do so at points of innocent suffering also? The strong, single-universe option may turn out to have serious theodicean flaws. Since the many-universes option is open to the theist, it would seem unnecessary to face these problems.

6

The Human Brain: Substratum of Freedom

The human brain is a substratum of human freedom. Whatever are the conditions of freedom, the brain must be such a physical structure that those conditions can be met within the human experience. This chapter aims to relate the concepts of materiality, mutuality, temporality and communality to the brain's structure. This relationship is to be seen for the time being as contingent. The question of modality belongs to Chapter 8.

It is important to acknowledge the peril of venturing into the territory of another discipline – neuroscience. The subject is complex and progress is fast. I have therefore attempted to confine myself, where possible, to well-established facts which have stood the test of time, without to my knowledge being contradicted or superseded. At the end of the chapter, I will briefly introduce the work of Gerald Edelman. This offers a number of new insights into neuroscience and its philosophical implications. These insights tend to confirm my general argument.

One concept needs early clarification – correspondence. Brain structures may be said to correspond to aspects of human freedom. For our purposes, I define a correspondence as the relationship between a structure or group of structures or principle of structuring and a function or capacity for particular sorts of behaviour such that the former (or its logically functional equivalent) is a *sine qua non* of the latter. This definition presupposes monism.

PHYSICAL VERSUS MENTAL: A FALSE DICHOTOMY?

The immensity of the brain is not to be underestimated. There are many-fold more neurons in one brain than people alive on Earth. Each neuron is capable of several hundred connections or synapses.

The neuron is one of the two cell types within the brain. The other, the glial cell, is responsible for metabolic maintenance. The

neuron is the channel of information. It functions electrically, chemically and physically – neurons fire electrically, chemical transmitters are passed along the axon and across synaptic gaps and synaptic morphology is a semi-permanent means of encodement.

The brain, unlike a simple mechanism such as a clock, cannot be dismantled so as to identify the function of each part. It is not merely a matter of its being complicated. Rather, most of its important functions subsist in highly complex structures. At the microscopic level, these simply are not present. The brain is more than the sum of its parts. It functions as a Gestalt or series of Gestalten.[1]

Since it is not possible to identify a structure with a function, one-to-one, the strategy of this chapter is to develop a number of structure types which are logically derivable from our definition of freedom and then to show that these are indeed instantiated within the brain. In such a brief space, this is inevitably an imprecise argument. I propose it as an example of what might be achieved elsewhere.

These structure types will be identified through a consideration of the relationship of physical events and mental events within the brain. What do I mean by 'mental'? I refer only to the universal experience of the self by the self. I find that the world is represented to me by my senses and that, by reflection on this, I may, *pour ainsi dire* re-represent the world to myself. Yet, I take it that this sort of process, conscious or otherwise, involves physical processes corresponding in some way or another to it. The mental is, in a sense, physical. Therefore, I suggest that the true distinction is between the mental, which is subjective and the neural, which is its physical correlate. Not all neural events have mental correlates, but all mental events have neural correlates.

This stance might be called non-reductionist physicalism. This will be functionalist rather than type–type physicalism. Functionalism focuses on the function incarnate in a structure rather than the structure itself. There remains the possibility that any given mental event, *qua* function, can subsist in a variety of differing physical structures. This latter stance does not lapse into dualism, for at no point is the mental given substantial life of its own. It is always dependent upon the physical.

R. J. Nelson's mechanist philosophy of mind is a fine example of non-reductionist physicalism. In the introduction to Nelson (1982), he writes

> My version of mechanism, in summary, holds that a being has a mind if and only if its body or certain body parts are guided by formally distinct rules (essentially of a nondeterministic finite automaton) of a complexity sufficient to account for intentionality, and it is capable of conscious feeling . . .
>
> . . . These mental things are still with us on the metaphysical side of the theory . . . [for] we still have to untie Schopenhauer's 'world knot'. It is, in other words, one thing to insist that our understanding of human knowledge proceed as an empirical enterprise, and quite another to deny our own inner states of awareness.[2]

Nelson asserts that conscious feeling presupposes sufficient complexity of an appropriate kind. The reductionist tends to avoid the notion of the sufficiency of complexity for consciousness. When the threshold of complexity is crossed, what can we say of the cause of emergent consciousness? The reductionist can argue that there is nothing to say. The rule of complexity has been fulfilled. That is the cause.

The underlying issue is the nature of causality itself. The reductionist dismissal of any further 'Why?' in the face of the threshold of complexity displays an epistemic view of causal explanation in science. This view is tantamount to saying that causal explanation consists of matching facts and deductions to accepted laws. The mechanist tends to work with an ontic notion of causal explanation. He needs to match events to known mechanisms rather than laws. This stance has been eloquently defended by Wesley Salmon (1984) to whose work I will make reference later on. Reductionist physicalism practises 'nothing buttery', in that it specifies that the mental is identical with the physical. This is then a rule to which all questions of consciousness and its causes can be referred. The mechanist who holds an ontic view of causal explanation is not satisfied that reference to rules, the deductive–nomological procedure, constitutes a valid explanation. The reference must be to causal mechanisms. I take it that when a monist refers to consciousness or mind as mysterious they are not invoking the ghost within the machine, nor any supernatural substance, but are rather saying that we do not yet understand the mechanism behind the emergence of consciousness. The non-reductionist such as Nelson can be a strict physicalist as well. What is required is an admission of ignorance of certain mechanisms, rather than a substitution of laws for

mechanisms in causal explanation. (The *locus classicus* of such an admission is in a paper by Einstein, Podolsky and Rosen,[3] on the irresolvability of complementarity in quantum physics.) In short, we need to look at the nature of causality within the brain from the ontic stance, so that the necessaria of consciousness should be structures within the physical domain rather than abstract laws.

Before examining the nature of causal mechanisms within the brain in some detail, it is necessary to consider the stance of some determinists concerning the location of causes. In the traditional literature of the free-will/determinism debate, one of the fundamental characteristics of determinism is its belief that human action lacks proper cause: all causation is alien. (Alien causation is 'from without', proper causation, its opposite.) I take it that this is the bone of contention with John Thorp's[4] notion of hegemony, discussed in the previous chapter. Thorp is proposing a *tertium quid* standing between strictly determined events and random events. This element is the mind's hegemony over its physical substratum. This does not invoke dualistic concepts. Rather, it says that mind, as an emergent product of matter still subsisting in the structures of its material base, can initiate action which has no alien, sufficient cause. Proper causation in relation to the human brain would mean that the sum of the outputs would be qualitatively different from the sum of the inputs, in such a way that the outputs would not, even in principle, be wholly predictable from the inputs.

What might this claim mean? It might mean that the brain is a prime mover, in that it manufactures agency without reference to the outside world. This is Plantinga's indeterminate free-will. I find it meaningless. It is part of common experience that our rational actions have causes and conversely that an action without any cause presents us with acute problems of meaning.

Proper causation stems from the architecture of the brain. Such is its make-up that there is no clear correspondence between input and output. Internal process intervenes. The determined determinist will not grant this point willingly. She will object, but surely the complexity of the brain only masks the determining process. To the extent that determinism is an epistemological stance, it is difficult to undermine this assertion completely. It is not necessary to undermine it. I will argue that mental hegemony can arise because the brain structure's functions are, in some instances at least, contributory causes of output and thus the sum of all alien causes is insufficient.

The brain's architecture can play the role of an INUS, to use John Mackie's [5] concept – the brain's functioning capacity and structure, prior to alien input on any given occasion, is an *i*nsufficient but *n*ecessary element in an *u*nnecessary but *s*ufficient whole which results in output.

It is part of our experience of being conscious agents that some of our actions are particularly our own. We claim them for ourselves. They do not just happen. (This is G. E. M. Anscombe's distinction between voluntary and intentional action.[6]) Some actions seem to require attribution to the agent rather than prior actions or events. (This is Arthur Danto's concept of basic action.[7]) The determinist can reply that intentional actions are as rigidly determined as non-intentional actions and that our perception of freedom at this point is simply misguided; we own some actions more clearly than others, but that is itself a determined process. She can also reply that, *pace* Danto, there are no basic actions. Once one grants the determinist her epistemology, these are valid enough objections. It is not my claim that the proper element in agency which stems from the structure of the brain rather than specific inputs is equatable with intention, free-will, basic actions or anything of the sort. There is no reason to suppose, at this stage, anything like a one-to-one correspondence. Rather, I would put forward the far more general notion of immanent causation, as proposed by W. E. Johnson. Dorothy Emmett summarises his notion thus:

> 'Immanent causation', as used by W. E. Johnson, meant change or transformation within a system, where the change is not fully describable through the action on each other of separate items, either external to the system or as constituents within it. Immanent causation in a living system may indeed call for interactions between constituents in the system, but these take place within an overall pattern of development.[8]

Immanent causation[9] is the effect of complexity and Gestalt functioning within a physical system. The whole system is greater than the sum of its parts. I contend that the mental is immanently caused within the brain and is not thus *merely* physical. It is indeed physical, but exists because there are complex causal mechanisms which are its substrata. The strategy of this chapter is to identify some of these mechanisms. With an ontic stance towards causality, it is mechanisms rather than 'laws' for which we search.

CAUSAL CHAINS WITHIN THE BRAIN

Physical versus mental is a false dichotomy for the monist, in that there is an important sense in which the mind is physical. The proper dichotomy is between the neural and the mental. Neurons are physical objects open in principle to public inspection. The mental is not an object in the same way. However, there are causal chains which link the mental to the neural.

There are four possible causal connections between neural and mental events. (In all that follows, the sign → stands for 'causes' without prejudice to the type of causation involved.)

A neural → neural
B neural → mental
C mental → neural
D mental → mental

Below, I will discuss each chain is some detail, arguing that each one is instantiated in the human brain – a monist interactionist stance.

Elementary philosophy of mind provides us with three terms which represent adequately three basic stances with regard to the mental and its place in these causal chains. Epiphenomenalism states that the mental is a mere by-product of the neural, but that only the neural can cause. (*A* and *B* obtain, but *C* and *D* do not.) Parallelism states that the neural and mental events run 'in parallel'. I confess myself perplexed as to what the causal implications of this are, such that parallelism denies interactionism. (*A* must obtain, *D* presumably obtains, either *B* obtains or there is a gap as to why the parallelism operates and *C* does not obtain.) Interactionism is the stance that asserts that the neural and mental interact in any of the above four ways. It really ought to be called monist interactionism, to distinguish it from the dualist interactionist stance of Sir John Eccles and Sir Karl Popper *inter alios.* All three stances are *prima facie* open to the determinist; only interactionism allows for mental hegemony along the lines proposed by John Thorp: mental hegemony subsists in causal chain *C*.

neural → neural

This chain is the least disputable, in that it involves a causal relationship between two physical objects. However, the neuron, one of

the two basic species of cell found within the brain, is far from a simple object. The causal processes within neurons and their linkages are complex.

Behind any assessment of the neuron must stand a scientific doctrine of causality. It is a major problem for interdisciplinary work that issues which are matters of intense debate within another discipline have to be taken on board without their being resolved in detail. This book is not the place to debate notions of causality operating in science today. I am, therefore, bound to adopt a particular, quite debatable stance as a working hypothesis. My stance is approximately that put forward by Wesley Salmon in his influential book, *Scientific Explanation and the Causal Structure of the World.*

Salmon is both a working scientist and a mechanist philosopher. However, his book focuses upon the practical need of science rather than the development of metaphysical doctrine; in that, its interest overlaps with our own. Salmon does not ask, in the first instance, about the abstract nature of causation; rather, he asks what constitutes a valid causal description. He points to a basic division between *D–N* and *S–R* notions of causation. The first of these stands for deductive–nomological causation. Cause is seen to be about the discovering of regularities in nature and then the attributing of causality to these regularities. In practice, this means that causal explanation is in terms of laws. Salmon objects to *D–N* explanations, in that the mere observing of regularities leaves an unanswered question: why does a system conform to that regularity. *D–N* explanations are potentially tautological. *X* causes *Y* because there is a nomological regularity being conformed to here; that regularity is that things like *X* cause things like *Y*.

Salmon opts for *S–R* explanations. *S–R* stands for statistical relevance. Good *S–R* explanations are, for Salmon, realist and mechanist. The *S–R* approach contains two elements. The first and more general is the assertion that causation is not about constant conjunction, nor about conformity to laws, but about the altering of the probability of an event. *X* causes *Y* when the occurrence of *X* raises the probability of *Y*. This definition does not commit us to seeing *X* as either necessary or sufficient for *Y*, only that the statistical probability of *Y* is raised by *X*. This first element in *S–R* explanation is a general claim that causation is a matter of probability rather than necessity. There is no commitment in this element as to whether the indeterminacy implicit here is epistemological or ontological.

The second element is particularly characteristic of Salmon's mechanist philosophy. Statistical relevance is not to be seen as epistemological; behind each change in probability there must be a mechanism. Sometimes, apparent indeterminacy is about our ignorance of mechanisms; sometimes, it is a matter of radical indeterminacy. Salmon insists that it is crucial to identify mechanisms or at least to identify areas of ignorance. His approach to causal explanation is reducible to three dicta.

(i) Specify causality in statistical relevance terms.
(ii) Specify the likely mechanisms underlying these causal factors.
(iii) Distinguish processes from pseudo-processes and then analyse the interrelationships (chains or forks) between the processes.

He is critical of *D–N* explanations for their failure to deal in mechanisms and processes.

His approach coheres with the methodology of this study in that he also needs to specify mechanisms rather than laws.

When we describe the neuron in some detail, we will discover that the causal chain 'neural → neural' exhibits a causality which is well represented by an *S–R* explanation and that there are at least two interrelated mechanisms which can be identified with this causality. The first of these is the radical indeterminacy inherent in the structure of the synapse. This indeterminacy has been known for some time, but its significance has been elusive. I will argue that it is linked to another mechanism, this time a far more complex one – the neural net. It is the interconnectedness of these two mechanisms which underlies the flexibility of neural → neural chains.

In order to help this description, I want to introduce a fertile concept from Nelson (1982).

Nelson's concept of a non-determinate, finite automaton (NFA) is a cybernetic notion. (This notion is elaborated in the Appendix.) An automaton is any mechanism which processes inputs to generate outputs in accordance with the principles of a Türing machine. Its finitude is the boundedness of its capacity for information. Crucial is the definition of 'non-determinate'. This does not refer to indeterminacy in either Plantinga's sense of having no causal predecessor or in Heisenberg's sense of being ineluctably statistical in causal structure. 'Non-determinacy' simply means that for any given

input there is more than one possible output. The technical term for an automaton in which there is no one-to-one correspondence between input and output is that it is polygenic.

It will be my argument that a neural net is polygenic and that a neural → neural chain which is physically simple can be cybernetically complex.

It is important to grasp that there is a variety of mechanisms which can render an automaton 'non-determinate' in Nelson's sense of the word. The majority of these do not rely on quantum mechanical indeterminacy, but may subsist in determinate processes.

neural → mental

We already know empirically something about the relationship neural → mental. The key notion is the engram and in particular the investigation of encodement by Wilder Penfield (1963). The notion of an engram merely states that the information which comprises our conscious experience, other brain functions and in particular long-term memory is encoded in the tissues of the brain. (The distinction of long-term from short-term memory is crucial. Short-term memory seems to rely upon electrochemical encodement, long-term, upon physical encodement. Only the latter is enduring.)

Penfield, a Canadian neurosurgeon, would stimulate electrically areas of the cortex exposed under local anasthesia during surgery. Sometimes, he would stimulate the motor cortex and produce movement, sometimes the speech areas (the area of Broca) and block word-finding. He, together with Roger Sperry, has contributed considerably to the mapping of the committed areas of the cortex. However, compared to the brains of lower mammals, the human brain is distinguished by the amount of the cortex uncommitted to specific activities. In stimulating uncommitted areas, Penfield would often trigger quite specific memory traces:

> When stimulating the exposed, temporal cortex of conscious patients (during the course of an operation for epilepsy) a few of them suddenly recalled vivid memories. One such was a lady who heard a tune being played and thought that it was coming from a radio. When Penfield stimulated again, it was repeated, and she concluded that it must be a gramophone record.[10]

It is clear from these and other accounts that information is encoded within local areas of the cortex. There is an identity between

the physical encoding and the mental, in that physical stimulation is experienced as subjective recall. It is likely that memory operates by the stimulation of these engram structures so that the engrams replay.

However, it should also be noted that the effect of local stimulation with microelectrodes is very different from memory or action. The vividness of recall by the lady quoted above was such that she could not distinguish between memory and 'live' experience. Most of us recall memories such that the experience of the memory is qualitatively very different from the experience of the event remembered. Part of this effect may be contextual. However, there are people whose level of recall is exceptional, for instance, those with eidetic memory. Similarly, when the stimulation is of a motor region, the subjective account is 'my hand moved'. There is no illusion that the subject caused the movement.

What might we conclude from all this?

(i) The brain must be sufficiently complex to embody a very large number of simple engrams, to perform an associative search and to contain sufficient information to constitute an operating programme to include both the engram, the searching and the prior deciding.

(ii) The brain must be sufficiently flexible for the searching to be stimulated by further, internal stimuli, such that we are not constantly remembering all that we have retained as engrams, but such that we may opt to retrieve appropriate engrams.

(iii) The brain embodies a solution to the logical conundrum of locating an engram before it is fired. This can be thought of as the logical problem of trying to remember something which, by definition, we cannot remember. We all share that strange subjective experience of trying to remember something and of knowing enough about it to know what it is that we cannot remember.[11] Gerald Edelman offers a worthwhile account of consciousness in these terms. This will be explored in the final section of this chapter.

(iv) Since artificial stimulation of engram structures is subjectively very different from human decisions, the brain must function as a Gestalt in that the mental correlates of spatiotemporally separate events are all owned as our own. While it seems likely that some areas of the brain are

> particularly concerned with becoming conscious in the sense of awaking from sleep, it would seem that consciousness is a non-localised phenomenon with access to vast areas of the cortex.

Complexity and flexibility are, in respect of consciousness, teleological qualities. It is generally assumed in the literature that consciousness, once described as otiose, is in fact an asset for which the process of evolution selects. In terms of our basic theological agenda, this evolutionary teleology corresponds with the need to escape theistic determinism. If the brain is complex and flexible to such a degree as to allow consciousness to emerge, then it became so under the pressure of evolutionary forces. This is a matter of fact. It is, of course, another matter as to whether evolution or something similar is strictly necessary for consciousness.

$$\underline{\text{mental} \rightarrow \text{neural} \;/\; \text{mental} \rightarrow \text{mental}}$$

Non-interactionists tend to deny that mental events bring about neural events and *a fortiori* that mental events bring about other mental events. This denial is possibly the result of a loss of grasp on the meaning of mental. The mental is physical. It consistently has a neurological substratum. This means that the physicalist uses the term mental in two different ways. That mental events exist is an assertion about the fact that neural events have, under certain circumstances, mental aspects which are classically described subjectively. That mental events exist is an ontological claim about the nature of some neural events.

The second meaning of mental for the physicalist, although very close to the first, focuses not upon the ontological claim, but upon the mode of description. All events are neural. Some complex, neural events have mental properties. Therefore there is some virtue in talking of mental events being caused or causing, where this in fact means that the mechanisms involved are neural, although it may be that the complexity of these would make a causal explanation under the neural description to be undesirable. In causal chains, the term 'mental' does not mark out a non-neural event, but rather a neural event with those specific properties which we call mental. Basically, all causal chains within the brain neuron network are neural. The substitution of the term 'mental' for 'neural' on any

given occasion is an acknowledgement of properties inherent in the neural events. 'Mental', while containing an ontological element, is also a kind of description of neural events.

This emphasis on mental events as substitution instances of neural events is of some help in eliminating the notion of dualism from talk of neural–mental interaction. It would be glib to leave it there, for there is another claim involved. Causality is about the passing on of information. In Salmon's term, it involves mark transmission; without mark transmission, there is only pseudo-process and therefore defective causal explanation. To assert the existence of mental → neural chains is to assert that, by mechanisms at present not understood, there is a particular type of information transmission going on. (What is true in this respect of mental → neural chains is true *a fortiori* of mental → mental chains.)

In simple neural → neural chains the passage of information can be described in terms either of electrochemical transmission or in terms of synaptic morphology. While quantification is not simple, we can at least speculate that there are thresholds in both processes which represent the passage of information when they are crossed.

However, these very processes have meaning. They are codes, but like many biologically arising codes and unlike synthetic codes, have no apparent, external source of meaning. (This is sometimes known as the Chinese room problem.) When Penfield stimulates a circuit to fire, the information passed is passed at two levels. There is electrochemical information and there is meaning. The meaning (the hearing of a tune in the above-quoted case) is caused at the same time as the electrochemical reaction. Physicalism presumes them to be, in a sense, the same event.

This being so, we can now see what the existence of a mental → neural chain involves. The mental event transmits information which is transmitted via the electrochemical information to produce an electrochemical effect. However, all information transmission has a logic or a grammar. In wiring, the logic is that of electrical flow. In mental events, it is that sort of logic which concerns itself with meaning and syntax. Therefore, to claim that one mental event causes another mental event is to make a claim almost as unbelievable as the claims of dualism. It states that the cause is linked to the effect by a process which involves two very different systems of logic. One mental event causes another mental event by virtue of the logic which links concepts. A neural event causes another neural event by the transmission of a raised firing potential. In mental →

mental chains, both happen simultaneously. It is most difficult to see how they are linked.

It is relatively simple that neuron A causes neuron B or fire, by raising the latter's firing potential across a threshold. The process is necessary but insufficient, in that other neurons also contribute. When I play word association, the concept 'green' elicits from me the reply 'tree.' Yet, this association happens because there is a complex neural → neural chain which is identical with the mental → mental chain, although the rules by which each works seems to be radically different.

Matter transmits information at several levels simultaneously within the brain. The physicalist is bound to face the overwhelming sophistication of this mechanism and at best in a spirit of humility.

A SUMMARY OF STRUCTURE TYPES

The aim of the remainder of this chapter is to outline details of the brain structure so as to relate its requirements to the existence of natural evil through the process of the evolution of the human animal within the cosmos.

These structures will be considered under four structure types which have been developed in the above discussion. These are as follows.

(i) The brain will show signs of an evolutionary teleology.
(ii) The brain and/or some of its subunits will be polygenic.
(iii) We may expect to find some mechanisms which might fulfil the criterion of being sufficiently complex to be the substrata of consciousness.
(iv) The brain will function as a Gestalt.

TOWARDS CRITERIA FOR FREEDOM

The brain can be examined for instantiation of the four structure types listed above; the resulting structures can then be related to the causes of natural evil.

What about necessity? If a structure is neither necessary to nor sufficient for its function, then the relationship between them, from

the point of view of our theological interest, is trivial. It will be implicit in what follows that a particular structure is likely to be necessary to its function. If it were not necessary, then there would be no virtue in claiming that evil were the inevitable cost of instantiating the function.

Necessity has two different meanings in this context. The implicit necessity of the following discussion is empirical and refers only to this world – Plantinga's α. A structure is necessary if its absence would, as a matter of fact, rob the brain of the corresponding function.

There is another variety of necessity which will be of importance later. This states that a structure is necessary if it or its functional equivalent exists in every possible world in which there is human freedom. By extension, our argument will require that it or its functional equivalent will be sufficient for natural evil. This is a meaning of necessity with very different implications from empirical necessity in α. This latter form of necessity will be the subject matter of Chapter 8 and is not implicit in the following argument.

Evolutionary Teleology

Sir John Eccles has written

> It was postulated in the 1930s that the brain was built as a more or less randomly organised structure, and then by use it was modelled to the appropriate design. This hypothesis has been falsified by many experimental demonstrations that the nervous system is already constructed in its detailed connectivity before it is used![12]

The brain is a mechanism that behaves teleologically in terms of its development. That is to say, in terms of the neurogenesis both within the individual and the species, the structures develop as though they have an end in view. This is most easily seen within the foetus, as this can be directly observed. The brain, being soft tissue, leaves no fossil evidence of itself, save of the increasing capacity of the cranium with the passing of time. However, it is a generally useful principle of developmental biology that the foetus goes through processes which parallel the evolutionary processes within the species, at least at the biochemical level. The brain has, then, evolved towards the goals which it is now attaining. This process is, of

course, not teleological in the vitalist sense; it is a stochastic searching for increased functioning under the pressure of evolution.

The theological interest in evolution is that it seems, *prima facie*, that evolution *qua* the creating of purpose out of non-directed, physical processes is the sort of mechanism that one might expect to be effective in overcoming the tyranny of omnipotence.

The evolution of mammals witnesses to an increasing complexity of brain function running parallel with an increase in capacity of the cerebral cortex. Thus, the rabbit has a smooth cortex, while that of the cat, like our own, is corrugated. This corrugation enables a greater volume of white matter to grey matter, which is equivalent to an increase in data-handling capacity in areas of the brain which deal with sensorimotor processes and with reasoning. Each has obvious, evolutionary advantages for any species. This complexification is, generally speaking, accompanied by an increase in cranial volume, within the hominids. (Across broader barriers of species, the density of neurons counts; cranial capacity is only an approximate function of this.) The primate brain varies from 500 ml for the apes to 1500 ml for *Homo sapiens*. The intermediate *Australopithecus* had a capacity of some 800 ml. He probably had developed pebble tools. The larger skull again of *Homo erectus* is associated with generalised tool making and an upright gait.

However, brain capacity or, more specifically, the size of the cerebral cortex, has no one-for-one correspondence with intelligence and does not relate at all to those functions such as emotion which are often highly valued as part of our human natures. Thus, G. R. Taylor[13] reports the case of Peta, a microcephalic girl who was nurtured by Professor Beritoff. She displayed less intelligence than an ape and in some respects even than a dog and yet was able to function at the level of maintaining her bodily needs more or less unaided. She showed a full range of human emotions, limited only by her highly restricted intellectual capacity.

Notwithstanding this reservation, we can ask what mechanisms might be responsible for the evolution of high cranial capacity.

This question has been addressed by Ernst Caspari, in an article which attempts to give a brief account of the variety of answers which need to be taken into account.[14] Caspari posits three distinct, evolutionary mechanisms involved in hominid encephalisation. Natural selection has a part to play, but genetic processes (microevolution) are primary. The result of the interaction of these processes is polygenicity.

To summarise, there are two vastly different levels of mechanism underlying the evolution of the brain. The first is its macroevolutionary setting. Who we are as a race and therefore as individuals depends upon the operation of natural selection, particularly in the selection of plasticity for learning. This presupposes a free, natural environment. The second, its microevolutionary setting, presupposes those subatomic, randomising effects which produce polygenic systems. In this, evolution relies upon the same fundamental structure of matter – its capacity to produce polygenic systems – which is also behind the adequate functioning of neural nets. (See the next section).

Let us now return to Eccles' quotation at the head of this section. The brain does not create itself, structurally, from use, from experience. It is hard wired. This seems at first counter-intuitive, because we are acutely aware that our brains change vastly as we grow up, learn, even become wise, age and die. Eccles' reference to the brain's hard wiring needs further explanation. The neuronal aspect (that is, the non-glial) of the brain contains three separate systems of information. The first, the electrochemical, is that which is detected by electroencephalography and is associated with short-term memory. The second is to do with the morphology of synapses; the information is encoded in subcellular structure rather than electrochemical functioning. This is connected with learning and long-term memory. The third system is the least understood. It is the very slow signalling system based upon the transportation of macromolecules and the ability of neurons to recognise surfaces and seek synapses. It is the chemical encodement for connectivity.

The question of connectivity can be illustrated from Eccles' study of the neurogenesis of the cerebellum.[15] The cerebellum is built up of a large number of different types of cells. The Purkinje cells which belong to the cerebellar cortex and the nuclear cells, which belong within the inner cerebellum are formed together from the same germinal cells by differentiating mitosis. While the nuclear neuroblasts remain *in situ* after the mitosis, the Purkinje neuroblasts migrate to the site where they will form synapses with the granule cells. However, this migration happens prior to the granule cell genesis and happens even when the granule cells are destroyed. Similarly, Roger Sperry[16] has established through work on severed optic fibres in frogs that neuronal tracts can regenerate accurately despite the high degree of tangle in the damage inflicted experimentally.

In short, the brain contains a macromolecular master programme for its own initial connectivities, a programme so effective that it can bring about limited repairs in the mature organism. Since these connectivities are highly specific to our human capacities, then they are, *prima facie,* also mechanisms for overcoming theistic determinism, while, incidentally, embodying a very high degree of physical determinism. While the precise mechanisms are not known (at least at the time of Eccles' account), they are essentially those same properties of matter which allow recognition in the far more primitive processes of chemical combination in the earliest days of the life or our planet. These, in turn, look back to the processes through which atomic matter is born in the very early universe.

Polygenic Neuronal Nets

A system is said to be polygenic if a single input can produce more than one output. This property is required within the brain if we are to be non-determinate finite automata as described by Nelson (1982). A network of neurons is polygenic on a small scale. On the large scale, it might be that this contributes to the plasticity of consciousness. (My suggestion is that polygenicity is necessary but not sufficient for human freedom in any useful sense of that word.)

Let us describe a neural network's basic combination of mechanisms. A system is polygenic when within it there is a device that can break the hard determinism that equates a single input with a single output. That device is the synapse. However, the synaptic switch is not the sole mechanism at play within the network. A network is wired to provide feedback. It works through both excitation and inhibition. It signals on the large scale by the statistical alteration of 'noise'. That is to say that sufficiently large neural circuits are firing randomly at all times, but that input is in terms of altered patterns of firing. This is presumably connected with the fact that an EEG reading is never flat. There is electrical activity through the cortex even when the subject is totally inactive. Concentration manifests itself as the cessation of α-wave patterns! These four mechanisms – synaptic, threshold indeterminism; feedback; combinations of excitation and inhibition; the superposition of signal upon random noise – work on slightly different scales, but interact to provide a system dynamic which is flexible, responsive and largely predictable but not wholly determinate. It is polygenic. The last three of these four mechanisms are complex and not well

understood, save in functional terms. However, they appear to relate to the quality of living matter noted above that they contain within their macromolecular structure chemical coding for design.

Interneuronal communication by a synapse is a *sine qua non* of polygenicity within our brains.

The synapse is described at length in Eccles (1964). There are a number of different kinds of synapse, but for the sake of simplicity I will describe some general characteristics.

A neuron transmits information both electrically and chemically. Why? Within the body of the neuron, electrical conductivity can be kept low, allowing easy ionic flux. Yet, over a very large number of neurons, an electrical signal would attenuate. Therefore, transmission across synapses is chemical, with the result that the synapses act as an amplifier. This dual transmission system has another major consequence. A complete neuron as a unit of information is binary and digital. Either it fires or it does not fire. However, as to whether it fires, it functions as an analogue system. That is to say, each synapse transmits across the synaptic gap a signal which either excites or inhibits, depending upon the type of synapse. Purkinje cells receive as many as 8×10^4 synapses.[17] This means that any particular neuron is made to fire by a highly complex accumulation of excitation and inhibition. It is not evident that the firing potential of a neuron is a set threshold; there may well be an area of microindeterminacy, within which firing would be optional and spontaneous.

The microstructure of the synapse is of key importance to the polygenic nature of a neuron net. A synapse is the swollen end of a nerve fibre, which abuts another cell. There is a gap of some 200 Å between the pre-synaptic and post-synaptic membranes. Each is polarised. The nerve impulse opens the pre-synaptic gateways which allow a chemical transmitter to pass into the synaptic gap, there opening post-synaptic gateways and so changing the polarity of the post-synaptic cell to either raise or lower its firing potential. The chemical transmitters[18] are initially contained in small, sac-like objects called pre-synaptic vesicles. Each of these is approximately 500 Å in diameter. These are crucial. An all-or-nothing impulse releases transmitter in quantised fashion into a cleft which is of such a size that it is open to quantum mechanical effects, with the result that the operation of the synapse is indeterminate within limits.

The physiology of the synapse is such that it is sensitive to a

degree of macroscopic randomness and a degree of microscopic uncertainty. Again, the function of the brain depends upon very primitive properties of matter and its microscopic precursors.

It is very difficult to describe accurately the effect of the mechanisms operating within a neuronal net. It may be, save for the synapse, wholly determinate, but, if that is the case, it is still adequate for what the determinist means by freedom. However, it may be that it is indeterminate in the sense that R. J. Nelson means in his discussion of non-determinate finite automata.

Complexification

Within the cerebral cortex, many of the somatic functions are localised and have been mapped both during surgery and post-mortem examination. Some areas are committed to specific functions. Much of the human brain – far more than that of any other mammal – is uncommitted. Penfield's work on engrams has shown that much of this is locally concerned with memory. It is certain that consciousness is non-local.[19] EEGs show that conscious experience is transmitted across much of the cortex. Commissurotomy – a good, philosophical chestnut – has shown at least that consciousness is shared by the two hemispheres in the individual with an intact corpus callosum. Perhaps the global nature of consciousness is necessary to its very function.

The picture of the cortex as a complex, multicompartmentalised organ, which nevertheless shares in a global consciousness, makes possible the notion that we decide by talking to ourselves. Even if this structure be wholly determinate in its operation, then its non-localised functioning at higher levels means that closely associated with our experience of consciousness is a system which can monitor itself by an associative process not to date duplicated by artificial intelligence and which can balance and assess inputs in terms of their symbolic content rather than their physical intensity. (See below, the work of Gerald Edelman.)

What is the case for the cerebral cortex is, *a fortiori*, so for the total brain. The brain can be thought of as five separate but intercommunicating organs. The cerebellum is a highly rigidly structured computer, concerned with coordinating actions and maintaining some 'non-conscious' activities. The ascending reticular activating system is concerned with maintaining an appropriate state of arousal in the rest of the brain. The mid-brain, itself a complex of several

organs, concerns itself with the maintenance of animal activity. The cerebrum is divided into two hemispheres, each with very different functional and morphological attributes. The possibility of complex intercommunication between these organs is clearly endowed upon us by evolution, for the simple reason that different parts of the brain evolve at different points in the movement from the simple brain of the reptile, through the mammals to the human neocortex.[20] Evolutionary forces have created the human brain over a considerable period of time.

The Brain as a Gestalt

C. U. M. Smith (1970)[21] argues that the behavioural correlate of consciousness is attentiveness, itself a function of the more basic concept of arousal. As there are different degrees of arousal and attentiveness, so there are differing degrees of consciousness.[22] Self-consciousness is cherished as the highest function of the brain. It is also an evolutionary product of the brain functioning as a Gestalt through mechanisms dealt with above. The animal learns. Consciousness with learning is the birth of self-consciousness. Smith[23] points out that it is the insight which develops after trial-and-error which in evolutionary terms is constitutive of our self-consciousness.

While Smith's claim that human consciousness derives from the brain's functioning as a Gestalt is well enough made, it is only recently that a close analysis of this claim has been attempted in the work of Gerald Edelman.

FREEDOM, CONSCIOUSNESS AND NEURAL DARWINISM

So, far, the argument has been that freedom requires a brain such as ours. The human brain, with its property of 'possessing' mental events which are also physical events, is necessary for our relationship with God. This argument has been developed by describing structure-types within the brain and then deducing from philosophical arguments about the nature of human freedom that these are the sorts of structures that would need to evolve to fulfil the condition for freedom which I have termed ontological distance. The biological evidence has been fairly general and not unduly controversial. As a result, there has been a need for detail.

In 1992, Gerald Edelman published his remarkable study entitled *Bright Air, Brilliant Fire: On the Matter of the Mind.*[24] While the thesis of Edelman's book is far from universally accepted, it provides a very detailed corroboration of some of the general arguments offered above.

Edelman (1992), like Nelson (1982) cited above, is physicalist without being at all reductionist. He views the human mind as unique in its capacity for consciousness of a high order, but he insists that this consciousness always has a basis in the biology of the brain. Edelman's outstanding contribution is in providing a detailed and testable theory of the relationship between consciousness and brain structure.

Edelman calls his own stance neural Darwinism because he argues that the very structures of the brain which lead to consciousness are dependent upon evolutionary processes:

> If we assume that brain functions are built according to a selectional process, we must be able to reconcile the structural and functional variability of the brain with the need to explain how it carries out categorisation.[25]

Neural Darwinism can be seen in dipolar terms. At one pole stands Edelman's overarching philosophical view of consciousness; at the other pole his theory of neuronal functioning. Let us begin with the former.

Edelman focuses in the above quotation, as in the whole book, upon perceptual and conceptual categorisation. This, he believes, correlates strongly with the more general phenomenon of human consciousness. He offers detailed arguments from psychology[26] that people categorise in such a way that no present-day computer could model the process. The classical categorisation of objectivist theory holds that there is a one-to-one correspondence between the real world and the symbols of the mind. Edelman denies this, pointing to the flexibility and unpredictability of metaphor and metonymy. People categorise in a way first described thoroughly by Ludwig Wittgenstein.[27] Wittgenstein pointed out that family resemblances were based upon polymorphous sets in which neither are there very general properties governing membership nor need any two members of a set have any specific property in common. Moreover, in polymorphous sets, there are often varying degrees of membership. There is often no hierarchical relationship between super-

ordinate and subordinate categories. Wittgenstein's observations about family resemblances correspond to Edelman's theory that human consciousness depends largely upon the fact that the brain has evolved:

> Consistent with this is the fact that categories are heterogeneous in origin: the actual properties humans use to determine category membership are interactional and they depend upon different biological, cultural and environmental variables.[28]

The text of Edelman's book cites much psychological research in support of his general claim. This need not concern us here, but its weight of evidence might be judged impressive.

Edelman's general approach to consciousness is that there must exist a number of elements which interact, but which are independent of each other in origin. This tends to confirm the general position argued earlier in this chapter that the brain functions as a Gestalt.[29] However, Edelman goes beyond this generality to attempt to demonstrate that this complex quality can be identified with low-level physical phenomena.

Here he introduces his theory of neuronal group selection (hereafter, TNGS). Essentially the TNGS states that neuronal groups within the brain evolve independently of each other by a process of natural selection, such that any group will compete with and modify other groups in exactly the same way that one species competes with and modifies other species in the more familiar reaches of evolutionary theory. Neurons and synapses constitute, in the Darwinian sense, populations.

The TNGS has three tenets.

(i) Groups of neurons evolve a structure through evolutionary processes based on topobiological competition. Our neuroanatomy is not 'hard wired'.[30] Its structure evolves under genetic constraints, but, such are the stochastic processes in this, that even where the constraints are identical the resultant structure is not. Thus, no two individuals have identical neural wiring.

(ii) Neuronal circuits are selectively strengthened and weakened by specific biochemical processes which can have mental correlates.

(iii) The third tenet of the TNGS is concerned with the way that

> the processes implicit in the first two tenets connect psychology with physiology. Groups of neurons cooperate to form maps. (There are, for instance, thirty or so identifiable maps in the visual system of the monkey.[31]) Maps interconnect through re-entrant signalling, in which massive fibres of neurons evolve to allow maps to monitor each other, to form higher level maps and in the end some global mapping.[32]

Edelman links the three tenets of the TNGS – and particularly re-entry – to perceptual categorisation. His argument, which is technically complex, contrasts a computer programme which might serve to produce a single piece of behaviour with the way the mammalian brain functions. In the latter, global mappings can select neuronal groups within local mappings via feedback loops which show a preference for survival-orientated behaviour. There is a continual dialogue between signal patterns and sensorimotor behaviour. In this way, perceptual categorisation is a flexible and evolving process in which neurophysiology responds to value constraints.

Perceptual categorisation is a low level activity in terms of human consciousness. Edelman extends his argument to conceptual categorisation and memory. It is possible to give but a flavour of his argument:

> The TNGS proposes that the evolutionary development of specialised brain areas is required before conceptual abilities emerge. The argument supporting this proposal is based on the notion that a single increase in the number of re-entrant maps capable of conceptual categorisation is insufficient to account for concepts .... In forming concepts, the brain constructs maps of its *own* activities.... The brain areas responsible for concept formation contain structures that categorise, discriminate and recombine the various brain activities occurring *in different kinds of global mappings.*[33]

Edelman's argument tends to demonstrate that there are detailed reasons for believing feasible the following propositions within the general argument of this chapter.

(i) The higher functions of consciousness have specific physical correlates.

(ii) These correlates are not-to-one, but are highly flexible functional equivalents. It is not the case that identical imputs generate identical outputs, but that very similar imputs generate similar and flexible outputs.[34]

(iii) The brain functions as a Gestalt so that one brain area can monitor another whose origins are independent of the first area.

(iv) Gestalt functioning depends upon the fact that low level structures, that is, neuronal groups, evolve. The brain is precisely not a computer because there is no master programme.

(v) Therefore, the brain is necessarily a product of evolution to the extent that both high- and low-level structures have to evolve in order that there is consciousness.

To conclude, the brain as substratum of freedom must be understood within its evolutionary setting. The necessaria of freedom are the sum of those necessaria which exist within the brain as it has evolved, together with those which exist within the environment as necessaria of the brain's very existence. The next chapter will examine the broader question of the evolving environment.

7

The Evolutionary Setting of Human Freedom

INTRODUCTION

In Chapter 6, it was argued that certain structures of the human brain are prerequisites of human freedom. The next stage of the argument requires an examination of the entailment of natural evil from these structures.

Natural evil is rarely dependent upon the immediate structural requirements of the human brain. The entailment is an indirect one. The human brain is the product of an evolutionary process which is sufficient for natural evil.

The strategy of this chapter is to describe aspects of the evolution of the biosphere, so as to elucidate their sufficiency for a number of examples of natural evil, then to consider one or two cosmological problems which bear upon the subject. The method of argument is to describe the contingencies of evolutionary process in this world – Plantinga's α – so as to show that they are sufficient for certain examples of natural evil.

The argument that the contingencies of freedom are sufficient for natural evil is inductive. The form of argument is that, in any particular case of natural evil, the conditions of human freedom are a sufficient (but non-necessary) cause of that instance. The choice of instances of natural evil must be carefully made. Two instances only will be dealt with in detail. The number must be small, under pressure of space. The examples must be evidentially reliable, in that the underlying physical processes are well understood and scientifically non-controversial. They must be 'typical'; by this I mean that they must be such that, if the entailment inheres in this case then it is probable that it inheres in a large number of other cases. Lastly, they must be religiously interesting. It is pointless for the theology of evil to deal with a natural 'evil' that has not been a life problem to believers.

Two instances fulfilling these criteria are the existence of earth-

quakes as a source of human catastrophe and the existence of cancer as one of the indomitable scourges of modern, medically sophisticated society and as a disease which causes dread as both life-threatening and potentially agonising. Each is scientifically well understood at the level under consideration.

The former's contribution to the earth's ecology is little more than a matter of childhood geography. The latter has a detailed literature, behind which is a growing consensus as to causal mechanisms. For the purpose of this chapter, the source book is the medical textbook Pitot (1986). Each is religiously interesting. The earthquake evokes primitive fears about the anger and vengeance of the gods. It seems to be a blow from the heavens which undermines the very foundations of human society. It was said that the Lisbon earthquake of 1755 was temporarily as successful as the whole of the contemporary Evangelical Revival in filling the pews of English churches! Cancer, despite recent advances in treatment, still evokes awesome fear. It challenges the notion of a God of Love. It is felt as cruel.

Each is 'typical', in that each demonstrates the seamlessness of nature's robe. The religious reaction to each might be 'Why did God not step in to prevent this?' In fact, each is tightly bound in with the very existence of human beings and that in a complex way. Earthquakes are a relic of the evolution of the environment; human freedom has a greater environmental factor than those such as Plantinga allow in their accounts. Cancer has no single cause, but links together the macroscopic and the microscopic, chance and necessity, ill-fortune and human misjudgement.

THE BRAIN AND EVOLUTION

The brain structures as they have evolved serve to free the human personality from divine determinism. The observable interconnections between the freedom-generating brain structures and the evolved environment are many and complex. This summary of the main features outlined in the last chapter illustrates this complex interrelatedness. So much that is sufficient for natural evil is interwoven in a web of that which is necessary for freedom; this suggests *prima facie* that there will be some form of argument that the entailment of natural evil from freedom is necessary.

What is meant by complex interrelatedness? Complexity is not just a matter of cumulative lack of simplicity. It is to do with the notion of cooperation in nature. The word 'cooperation' is an anthropomorphism; it i not meant to suggest vitalism. Cooperation simply refers to the fact that structures and characteristics which are evolutionarily separate, work closely together *in situ* to achieve a particular effect. Complexity consists of a situation in which, for a particular effect such as human freedom, processes intersect even though those processes flow from widely separate temporal and causal areas of the evolutionary process.

Two aspects of brain structure rely upon processes which originate at different phases of the pre-biotic universe. Their deeper significance will be considered towards the end of this chapter with our consideration of the role of cosmology in this argument.

The brain is polygenic – it functions as a non-determined, finite automaton. (See Chapter 6 for this concept.) This polygenicity results from the sensitivity of the synapses to quantum effects. In other words, the polygenic brain is one of the substrata of human freedom, in part because we live in a universe of which the materiality is founded upon a subatomic structure which behaves very differently from the classical, macroscopic world. There is a direct relationship between the polygenicity of the human brain and the fact that field fluctuations are quantised, in that the polygenicity of the brain stems from quantum effects across the synaptic gap. If we did not live in the sort of universe described by quantum electrodynamics, this mechanism of polygenicity would be absent. In other words, one of the latest products of biological evolution derives its plasticity from those physical properties which were predominant in the universe's earliest aeon.

The brain is, according to Eccles, hard-wired. This means that the human brain has innate within its physical make-up a high degree of structuring before it even begins to process information. This is because its constituent macromolecules have the ability to encode structural possibilities. Eccles has shown that cells within the cerebellum migrate during the early days of that organ to form synapses with cells which are not initially their close neighbours. The brain's mature functioning is not dependent upon functionally dictated interconnections alone. There is a true tension between nature and nurture. Neither the chemical encodement nor the environmental impact of living is the sole determinant of mature functioning. This hard-wiring relies upon the ability of macromolecules to encode

the required structural information within the individual foetus.[1] Freedom and brain function of this sort can only happen in a universe which generates macromolecules which encode the required information.

Similarly, the ability of macromolecules and thence living cells to encode information is crucial in two other widely separated processes. The existence and behaviour of the genome is, of course, dependent upon the existence of the genetic code. In DNA, sequences of amino acids possess meanings within the context of the cell. They code for proteins or for processes in protein synthesis. It is not clear why or how this codification operates. However, it is clear that it does operate spontaneously – that is, without divine intervention – and that, without this property of matter, there would be no life, no human freedom.

Even more perplexing than the genetic code is the ability of large complexes of neurons to encode meaning. Both neural → mental chains and mental → neural chains (and *a fortiori* mental → mental chains) presuppose the ability of matter to encode meaning. It is a matter of fact that this capacity has evolved with time. Thus, a scientist can render an account of it without needing to invoke a divine architect. This can be viewed in two different ways. It may well be that there is no objective referend to the word 'God' and that all that is has evolved spontaneously; that there is no God who is troubled by his own omnipotence. However, for theists, the spontaneity of the evolutionary process can equally well be interpreted as an aspect of God's renunciation of divine determinism – a renunciation necessary for the existence of truly free creatures.

Biological evolution – that is, that part of the evolutionary process which occurred after the formation of the earth's surface – has given rise to several of the structural characteristics of the free human brain. The brain acts as a Gestalt, it is flexible, it is extended in space and time and is thereby open to both coincidental and analogue indeterminacy and to the major input of environmental pressure, it has developed redundancy through microevolutionary and environmental factors and it has developed attentiveness by the cooperation of three levels – the tension between repeated sequence and base substitution mutation,[2] natural selection for attentiveness[3] and a cultural environment to maximise the value of attentiveness.

The next section deals with the cooperation of microevolutionary and macroevolutionary forces in the genesis of the human species.

AN OUTLINE OF THE EVOLUTIONARY PROCESS

Modern biology is divided by a major controversy. On the one side stands the textbook orthodoxy of the synthetic theory – known also as neo-Darwinism; on the other the new insights of the transformed cladists. The debate is complex and at times aggressive. The issues are well represented in two books, Schilcher (1984) for the synthetic theory and Pollard (1984) for the cladists. There are many issues at stake in the debate. The lay person is often at a loss to grasp the finer details. Amongst the more important is the contention of the cladists that synthetic theory is epistemologically defective, because, being unfalsifiable, it resembles metaphysical dogma rather than scientific theory – a Popperian objection.[4] Similarly, popular science has become aware of the contention of S. J. Gould, *inter alios*, that evolution has not proceeded smoothly, but by jumps – saltatory evolution.[5] While the cladists have taken Gould's point to heart, it is far from obvious that saltatory theory is inimical to the synthetic theory. In short, the waters of theoretical biology are muddy.

We need not be too concerned with this, for much of what interests us is, in any case, common ground and unexceptional. Nor is the state of knowledge in biology such that we would be wise to take one side or the other. However, in one respect the work of the transformed cladists is of particular interest and this I will exploit.

Cladistics is a discipline which analyses phylogenetic interrelationships by the construction of mathematical trees. Although some rooted trees suggest the notion of a common ancestor, trees need not be rooted. Cladistics is not committed to evolution as a process of diversification. It remains agnostic. (This has been seized upon and grossly misrepresented by so-called creation scientists; I feel under no obligation to say more of them than does Kitcher, 1983.) The dispute between cladists and neo-Darwinists which matters to this argument concerns the role of macroevolution. Macroevolution is to be distinguished from microevolution as follows. The latter concerns alterations to the genome, through a combination of mutation and natural selection. The former concerns the diversification of species in response to changes in the macroenvironment. Typically, gene pools will diversify when populations are separated geographically.

Cladists believe that the synthetic theory does not give a sufficient explanation of speciation. They insist that the environmental

factors are of great importance. This introduces the notion of a fluid genome. We will examine this below. The cladists' standpoint is of interest to theodicy in that it emphasises the necessary role of the environment in speciation and because, through the concept of the fluid genome, it renders some account of the position of viruses in evolution. Such material must be taken into account in this chapter.

Microevolution

Microevolution occurs when the genome undergoes changes which, under pressure of natural selection, are maintained in the gene pool. There are two theories as to why changes in the genome might be retained thus. Orthodox Darwinism presumed that the retention of a change in the genotype of a particular population was due to selection for that change. Those who hold a neutralist stance claim that there is a broad, middle ground between selection for and selection against a change in genotype; selection against certainly removes a change, but other changes may remain within the gene pool because either they do not immediately translate to the phenotype or because their effect on the phenotype is neutral. The neutralist position, gaining in acceptance, is important in that it pictures a greater number of changes in the genome being retained purely at random. The genomic system is less strongly determined in its content by environmental pressure and thereby has a greater potential for variety.

Microevolution accounts for the changes in the genotype which must precede the changes in the phenotype. Darwin had accepted for a short while the Lamarckianist[6] doctrine that changes in the phenotype can feed back into the germ cell. This is not the case. Orthodoxy has long rejected Lamarckianism. Some biologists would argue that there are occasional instances of feedback into the germ cell, but, if these exist at all, they are rare. Essentially, microevolution is necessary for macroevolution. The former provides the motive force; the latter modifies its sense of direction.

Molecular biology has over the last four decades described in remarkable detail the intracellular mechanisms of genetic function, replication and evolution. The essential pattern is that all proteins are encoded in the double helix of human DNA. The doubleness of the helix is crucial. The human cell, by contrast with some primitive forms of life, is diploid. The genetic information is coded twice

over, thereby allowing the two halves of the double helix to separate and recombine with other strands. Where genes do not match from one strand to the other, then one is dominant, the other recessive. At many points on our DNA, we carry two sets of information. This is the essence of sexual reproduction. Sexual reproduction has been selected for because of its ability to produce variety. Since the process is stochastic, the favourable process carries with it the balancing handicap of producing some unfortunate variants. The very selection for sexual against asexual reproduction is both necessary to the existence of human beings and carries with it the necessary risk of natural evil.

DNA requires an intermediate – three types of RNA molecule in fact – to be translated into the proteins which compose the phenotype. The genetic code is complex, involving a considerable degree of redundancy. In DNA, there are four bases – designated U, C, A and G – but these need to code for twenty amino acids in proteins. A two-element code is insufficient – $4^2 = 16$. Therefore, the code has three elements. Yet, in such a code, there is much redundancy – $4^3 = 64$. Of these 64 combinations, three are nonsensical, while the remaining 61 code for 20 amino acids. The strength of this is that, at the level of least energy – that is, more economical than a four-element code generating 256 codons – there is much redundancy. In effect, this means that, since similar codes tend to encode the same amino acid, there is a very great probability that any given chance error will have no phenotypic effect. The system is very conservative although not fail safe.

What we often call natural evil is not only the necessary risk inherent in a living system, but is a small risk emerging from a highly conservative system. Sometimes, apparent natural evil is the consequence of a selection for one fault in preference to an alternative fault. An interesting example of this is sickle cell anaemia[7] (see the Appendix).

Returning to the basic principle of microevolution, the genome undergoes a number of point mutations. Although the precise process varies – base substitution, frame shift and so on – the underlying cause is the introduction of random error. Perhaps the most important cause of error is ionising radiation – a major cause of cancer.

We note that a cell becomes cancerous because it is sensitive to precisely those quantum-scale effects which are also responsible for the polygenicity of neural networks in the human brain. The

interdependence of human freedom and natural evil is convincingly illustrated at this point.

Above the level of point mutations are those changes which result from the fact that some sequences in the genome are movable.[8] Temin and Engels point to the similarity between the capacity of the genetic material to transpose its position and the intracellular parasitism of viruses. This parallel is useful; even the troublesome virus looks to be a likely consequence of a necessary property of genetic material.

To summarise, microevolution requires there to be a large number of changes in the genome, so that natural selection has material to work with. If the neutralist theory is right, the amount of conserved novelty is high and the notion of selection against an allele less powerful than selectionists imagine. This novelty is generated by a number of mechanisms; two of the major ones – point mutation and the moveability of genetic sequences – are closely related to carcinogenesis and to the origin of viral infection. The biosphere grows by a number of stochastic processes which necessarily generate natural evil. Closer examination of these processes demonstrates the conservatism of the systems. The vast majority of errors are innocuous, while many of the harmful ones are selected against. From time to time, one of nature's apparent failures – sickle cell anaemia – turns out to be a success in evolutionary terms, albeit a Pyrrhic victory for a latter day, British victim of the disease.

Macroevolution

Neo-Darwinian gradualists presume that, contrary to the apparent evidence of the fossil record, species emerge gradually from a common ancestral stream and that natural selection of favourable mutations is a sufficient explanation of speciation. Saltatory theory exponents claim that speciation is punctiliar, happening as if a previously stable equilibrium had been disturbed. This disturbance, it is argued, must have a cause other than natural selection. This departure from orthodoxy emphasises the role of the environment.

D. R. Brooks[9] points out that speciation involves the crossing of a threshold in the sense that speciation represents an increase in information change and, hence, a decrease in entropy. This process he likens to a phase transition – such a phenomenon as the melting of ice, using energy to produce a change of state rather than of temperature. He distinguishes between active and passive

phase transitions. The former concerns such mechanisms as sexual reproduction and active mate selection; the latter concern geographical and other environmental pressures which separate out populations. That mere natural selection in the gradualist sense is insufficient for speciation means that the evolution of species depends directly upon the environment being dynamic and evolving, using both benefit and catastrophe. Macroevolution would not have been possible in an environment which was both autonomous and stable enough to be free from the possibility of natural evil. The very processes which generate natural evil are the same processes as are necessary for such phase transitions.

Macroevolution and microevolution cooperate. Natural selection and environmental pressure serve at some times to accelerate the evolution of new proteins and at other times to stabilise the protein lineage.[10] The environment and the genome interact to regulate the pace and mode of microevolution. Again, the notion of cooperation suggests the interdependence and delicacy of the whole.

That the dynamic environment is crucial applies not only to genomic development, but to cultural and linguistic development as well.

In summary, no account of human life can underestimate its dependence upon an evolving, dynamic environment. Such an environment emerging through stochastic processes inevitably has its penalties as well as its benefits. Evolution requires only that it should be good enough; not perfect by any standard.

EVOLUTION AND NATURAL EVIL

The above description of the evolutionary process is all too brief. However, it does allow us to make some connections between the process and the two examples of natural evil previously selected.

Earthquakes

This example is deceptively simple. It may seem possible to say that earthquakes simply happen because they are remnants of the process of the birth of the planet. However, the interconnections are more fruitful than that alone.

Let us look at three propositions.

(i) God could have made a wholly stable planet, which would then not have suffered earthquakes. This seemingly innocuous option would reduce the amount of human suffering over history quite significantly.
(ii) Intelligent life could have evolved more slowly so that the planet would have been seismically dead by the time humans existed to experience suffering.
(iii) Earthquakes have a causal connection with the very existence of life as we know it.

I propose to argue that the third proposition is factually correct; the inaccuracy of the first two propositions illustrate the seamlessness of life's robe in the world as we know it.

The first proposition attempts to separate out the origin of the planet's surface from the rest of the process of evolution. It fails because evolution seems to operate through the cooperation of processes which are widely separated in terms of causal origin. The evolution of the planet's surface is causally connected with both antecedent and subsequent events. Antecedently, the fact that the surface of the planet is seismically active stems from the fact that solid matter is the end result of a long chain of events. In the very early universe, hydrogen and helium had to emerge[11] in appropriate proportions for stellar evolution, stellar evolution had to pass through a number of phases to generate the higher elements in the periodic table and a complex process of gravitational association and condensation had to happen before planets capable of developing a biosphere could emerge. Seismic activity is a late phase in that process of condensation. To suggest that God could bypass earthquakes is to suggest that the autonomy of matter as we perceive it in terms of the origins of the universe is dispensible. The apparently simple question of earthquakes collapses into the far more profound question of the necessity of the autonomy of matter.

In terms of events subsequent to the formation of the planet, earthquakes look to play just as crucial a role, but not this time as the unavoidable by-product of another process; rather, as a direct cause of the evolution of free beings. Earthquakes as an aspect of vulcanism are a source of energy and, together with electrical storms, form the input, together with the earth's early, reducing atmosphere, which results in the origination of amino acids. Earthquakes increase the probability of the origin of life's macromolecular building blocks. Earthquakes are a side-effect of plate-tectonic movements; these

in turn play a major role in changing the environment and, hence, in promoting speciation. This latter point is particularly made by transformed cladists. In short, earthquakes and their related phenomena play a crucial role in promoting the evolution of species.

Earthquakes cannot be removed from the warp and weft of life by a divine fiat; they are too closely related to other processes, crucial to the evolving environment, by way of both antecedent and subsequent chains of causation.

Is the second proposition more hopeful? Can we have our cake and eat it – earthquakes and humans, but not at the same time? In fact, we cannot. The reason for this is a localised version of the weak anthropic principle. This generally claims that the universe looks as it does today to us simply because it can only be seen when it is in such a condition to have give rise to observers. The localised version of the weak anthropic principle would claim that we must co-exist with earthquakes in that they contribute to the origin of life at a primitive level and to speciation at a lot later date. It is vulcanism itself which significantly increases the probability of life and thus it is scarcely surprising that, in a universe which functions largely stochastically, intelligent beings have to co-exist with vulcanism. Even rather exotic attempts at evading this fall on fallow ground. Could the earth have cooled faster than it did, so that vulcanism would be in the past, having done its job? Again, no! Faster cooling may have had geologically undesirable effects, but, ignoring this, we can rephrase the question thus: 'Could the rate of increase of entropy in matter have been considerably greater than it was relative to the time span of human evolution?' It is likely that this could not have been the case. A universe with such an accelerated rate of increase of entropy is not likely to be congenial to the evolution of life in the first place.

Earthquakes seem to be inevitably with us in terms of time as well as place.

These brief examples show that earthquakes are, with much else that we call natural evil, an intricately interwoven strand of the processes which gave birth to humanity itself.

Cancer

Whereas earthquakes and vulcanism have but a single immediate cause – the cooling of the planet – cancer has many causes.[12]

There are four known major causal factors in carcinogenesis.

Radiogenesis – the effects of ionising radiation – has been evident since science first noted the high incidence of cancer in those working unprotected with radioactive substances. Some epidemiological evidence of chemical carcinogenesis existed in the nineteenth century, when it was noted that there was a high incidence of scrotal cancer in sweeps' boys. This awareness has increased in the last three decades, as the contribution of smoking to cancer has been more fully understood. Only more recently have viral and hereditary factors been acknowledged.

Let us look at these four factors in some detail.

Chemical carcinogenesis Research into the carcinogenetic effects of coal tar began in Japan in 1915. By the 1930s, several polycyclic hydrocarbons had been isolated as specific to cancer. These all tended to react upon the immediate site of contact. In the same period, two Japanese scientists, Sasaki and Yoshida, began to work on azo dyes. These were of interest for two reasons. Firstly, all the carcinogens showed certain common factors in their macromolecular structure – in the case of the amino group of dyes, at least one methyl substituent. Later research has shown that molecular structures are of key importance in carcinogenesis. Secondly, the azo dyes acted not upon the immediate site of administration but remotely. Azo dyes are hepatocarcinogens. They trigger neoplasms in the liver. This indicates that not all substances which are apparently carcinogenetic *in vivo* act directly. For instance, the aromatic amine AAF is only activated when metabolised to give the N-hydroxy derivative. Thus, injected AAF only produces distant neoplasms, while N-hydroxy-AAF also produces sarcomas at the site of injection.

The evidence points to the fact that ultimate carcinogens are metabolised within the cell and that carcinogenesis is about damage to the information structure of the cell. AAF-N-sulphate is highly mutagenetic, transforming DNA structures. In 1947, Millers showed that azo dyes bind covalently with liver proteins and that these proteins are consequently absent in neoplastic liver cells.

In short, chemical carcinogenesis involves a macromolecule being metabolised within the cell in such a way as to damage the DNA or the RNA. The damage may be major, such as the breaking of both strands of the DNA's double helix or it may be a relatively minor distortion through covalent binding. Minor damage can have equally disastrous effects in that the DNA repair mechanism can

fail to recognise it. Chemical carcinogens damage the information structure of the cell by interacting with specific macromolecules within the cell.

Radiogenesis The genesis of tumours is highly complex. For instance, it is now known that leukaemia can result from the activation of a carcinogenetic virus by ionising radiation. At its very simplest, carcinogenesis seems to fall into two stages: initiation and promotion. Radiation can be responsible for either or both of these. It can most certainly induce genetic mutation; in damaging the information structure of the cell, it increases the error proneness of repair and replication of DNA. Very little is known in detail of the process at the molecular level. Some specific sites on the DNA molecule have been researched, with evidence of chromosomal deletion and gene mutation. Radiocarcinogenesis working at the promotion phase may be due to the pre-cancerous cell being given the ability to escape the antimitotic control mechanisms of ordinary cells.

Radiogenesis is not well understood, but certainly relates to damage of both DNA and other control mechanisms.

Viral infection and heredity Pitot (1986) suggests that cancer should be seen primarily as a genetic disease. By this, he means that cancer is a disease of the mechanism of cell differentiation, which arises either from a fault in the genome or in its expression in the phenome. It is consonant with our consideration of chemical and of radiation carcinogenesis that this should be so. Chemical reaction with the cell and ionising radiation both affect the genetic mechanism. We are gradually gaining a better understanding of both viral and genetic components in carcinogenesis. What follows is a much simplified sketch of a complex situation.

Cancer is not normally considered hereditary in the usual sense of that word. It is rarely passed on from parent to child. There are exceptions such as familial multiple polyposis of the colon and bilateral infant retinoblastoma. The former runs in families, as its name suggests; the latter can only be explained in hereditary terms, because the neoplasia of the eyes develops in each eye independently, but at the same time.

Although the vast majority of cancers are not inheritable, the genetic make-up of its victims is becoming of more concern to the medical profession. At the epidemiological level, it is well estab-

lished that individuals with chromosomal instability, such as Down's syndrome, Bloom's disease and Fanconi's syndrome, suffer a very high incidence of cancer. Some eight cancers are linked with known chromosomal abnormalities. Chronic myeloid leukaemia is linked in some 25% of cases with a shortening of the long-arm of chromosome 22 – the Philadelphia chromosome. Yet, such simple correspondences are rare.

The notion of the oncogene – a gene specific to carcinogenesis – is now seen as fundamental to viral and genetic considerations. The oncogene contains information which may result in the transformation of the cell. Oncogenes may be cellular, that is, innate or they may be viral, which is to say, parasitic. Oncogenes which are not normally carcinogenetic may be activated by a variety of stimuli. The stimulus causes the gene to be expressed in a structurally altered form or at a higher than normal level.

Cellular oncogenes are present in the DNA of all somatic cells and thus are open to activation by viral and non-viral carcinogens and to inclusion in the viral genome. Perhaps one of the most powerful points to emerge from this area of study as far as this book is concerned is that at least four oncogenes exist in species as distant as humans, drosophila and yeast. From this, we may infer that the very genes which can give birth to cancers in one context are, in their normal, cellular contexts, highly conserved, both in vertebrate evolution and in lower life forms.

The viral and genetic aspects of carcinogenesis are irrevocably intertwined with the evolutionary processes of life on earth.

This analysis of carcinogenesis allows us to draw out some parallels between carcinogenetic and evolutionary processes.

1. The evolution of advanced life forms depends upon the appearance of the eukaryotic cell. Unlike its precursor, the prokaryote, it is unable to withstand the high temperatures of the early biosphere, but it is capable of metabolising the growing proportion of free, molecular oxygen in the atmosphere. It is bound to be a late arrival on earth. The prokaryotic cell is relatively simple. It reproduces clonally, whereas the highly sophisticated eukaryote reproduces by recombining its genetic information in novel ways. It is capable of producing the creative novelty which characterises the higher life forms on this planet. The eukaryotic cell is able to metabolise. It generates a somatic entity from information in the genotype

by transcribing the DNA into mRNA and then by translating into protein. The cell is self-regulating, self-replicating and self-repairing. Carcinogenesis occurs when these life generating and highly complex procedures include minor anomalies. The parallel between the life generating and the cancer-generating procedures is so close that it is unreasonable to expect one without the other in a free system.

2. Chemical carcinogenesis seems to depend upon the hydrogen bonding of macromolecules. This is exactly the potentiality upon which life itself depends. Laboratory experiments done by Stanley Miller (1953) at the University of Chicago have shown that the reduced atmosphere of primitive earth could generate complex, organic compounds. Life results from the ability of compounds to self-assemble. It is a property of organic matter that it seeks structure via hydrogen bonding. The process of bonding with great efficiency is the source of higher levels of structure, but also of some chemically based carcinogenesis.
3. Evolution has depended upon the spontaneous generation of novelty. Whatever its shortcomings, Jacques Monod (1974)'s argument is an eloquent explanation of the need for novelty:

> natural selection operates upon the products of chance and knows no other nourishment.[13]

A major source of chance (some would argue, the only source of chance) is the quantum effects to which cell constituents are sensitive. Evolution depends upon mutagenesis, which in turn relies upon either the malfunction of the replicative process by accident or by the alteration of the genotype or of the epigenetic function by ionising radiation. Evolution in a free system requires precise properties which are likely also to be carcinogenetic in some instances.

4. The viral element in carcinogenesis is the most difficult to place in evolutionary terms. Viruses are not, like bacteria, primitive life forms. They seem to be pre-biotic parasites which are possibly defective cellular genes in origin. They are indisputably a tribute to the power and flexibility of parasitism. These qualities are parallel, but not of the same family as the

creativity and resilience of true, primitive life forms. Again, the virus, if not itself necessary to evolution, is a predictable by-product of the universe's fertility. It is the best gardens which grow the best weeds!

In 1984, H. M. Temin and W. Engels argued that at least the retroviruses can be seen as merely rogue examples of the movable genetic elements which contribute to microevolution:

> Since they are viruses, consideration of their role in evolution involves all the normal considerations of parasitism, mutualism and commensualism. In this case, however, the parasitism is at the level of the genome itself. But since retroviruses have numerous structural and functional homologies with true cellular moveable genetic elements and, thus, are evolutionarily related to them, all moveable genetic elements can be considered protoviruses and, thus, quasi-independent and semi-parasitic genetic elements.[14]

5. The ubiquity of certain oncogenes suggests that the evolutionary process cannot distinguish with sufficient accuracy between genetic functions which it needs to conserve and closely related functions which are harmful, although not overwhelmingly so.

To summarise, the parallels between the processes which underpin evolution and carcinogenesis are sufficient to make cancer highly likely in a freely evolving universe.

For the theist, this gives cancer the status not of a piece of divine carelessness or callousness but of a true cost of the very act of creation. It is a predictable element within the creation of a self-giving and self-limiting God.

The example of the earthquake demonstrates that a *prima facie* simple phenomenon is in fact closely bound in with the rest of the evolutionary process through complex antecedent and subsequent chains of causation. The example of carcinogenesis demonstrates the logical proximity of processes which generate human freedom to processes of natural evil.

To the extent that these examples are typical and to the extent that there are no very troublesome counter-examples, we may infer the sufficiency of the contingent conditions of freedom for natural

evil. The final section of this chapter will use some strands of cosmology to give added credibility to this inference.

THE COSMOLOGICAL CONDITIONS OF EVOLUTION

Above, I have argued that the physical necessaria of freedom are sufficient for certain natural evils. Ideally, each individual instance of natural evil would be deduced separately from these necessaria, since the argument operates at the level of chains of physical causation and each instance of natural evil falls within a unique causal network. However, I have suggested that each instance of natural evil so dealt with contributes to an inductive argument that the vast majority of natural evils parallel the two examples dealt with above. (I cannot demonstrate the absence of counter-examples. Any individual counter-example would be a problem for theodicy in its own right.) This brief consideration of cosmological factors is intended to strengthen this inductive argument; it will show that this life-generating universe has evolved from a number of initial parameters which are finely adjusted to the needs of life and which indicate that many apparently separate processes are indeed complexly interlinked in their origins.

As with the other scientific disciplines glimpsed above, I will describe the universe where possible in terms of the common ground within the discipline. However, where areas of controversy seem important, I will avoid adopting one particular stance as a logically indispensible part of the argument.

As a science, cosmology is unique in giving an overview of the parameters of the material order which we inhabit. Cosmology enables us to understand not only the universe as it is, but the universe as it has been. In part, this is due to the vast distances over which information is transmitted at finite speed; to see a long way is to see into the distant past. In part, it is due to the interest of high-energy physics in processes which also describe the very early universe in its first few instants of life. It helps us see that the act of creation is a finely-balanced, unified whole. All aspects interrelate complexly. Creation is a seamless garment. This overview is suggestive of the logical impossibility of removing one particular aspect of the created order – natural evil – as though the remainder would function normally.

This last point has been noted effectively by John Polkinghorne

in the concluding book to his popular trilogy on issues in science and religion.[15]

> I think the only possible solution [to the question of natural evil] lies in a variation of the free-will defence, applied to the whole of the created world. One might call it the 'free-process defence'.

God and Cosmology

Cosmology has been used by theist and atheist alike for apologetic argument. On the one hand, in 1963, when the discovery of the 3°K microwave background confirmed the ascendancy of the big bang model over the Bondi–Hoyle–Gold steady state theory, the Vatican rather prematurely expressed enthusiasm for this as consonant with theism. On the other hand, Stephen Hawking's (1988) recent popular cosmology develops the notion of a finite, non-singular boundary for the early universe as an argument against there being a creator. He is in error *prima facie* on two counts. It is not clear that his boundary specification would embarrass theism; even so, since it is developed out of his rejection of the strong anthropic principle, the argument is circular. I do not wish to espouse cosmology for apologetic purposes.

By contrast, I argued in Chapter 2 that for the theist there is methodological worth in declining the invitation of the Humean syllogism to engage in apologetics. God, in a critical–realist sense, is to be taken *ex hypothesi*.

Why take God for granted? Theodicy is a question unique to the theist. The non-theist ought to find evil a problem morally and aesthetically, but by definition only the theist can be faced with the suspicion that God can be chastised for the shortcomings of the created order. Since the theodicy problem is founded upon the existence of God, in a critical–realist sense, then necessarily any response to that problem in terms of a theology of evil must include God's existence. Atheism is not a solution to the theodicy question; it is a rejection of the appropriate notion of God in the face of evil.

The consequence of this 'God hypothesis' is that the description of the evolution of the universe is a description of the process of divine creation. The contingencies of the actual universe constitute divine action; they become necessary only as we establish that God could have done no other!

Conventional Big Bang Models of the Universe

In 1963, Robert Wilson and Arno Penzias identified the 3°K background cosmic radiation.[16] This is the remnant of the big bang. It is taken as conclusive proof that the universe came into being at a definite point in time and at a singularity – an infinitely small and dense point – subject only to certain sophisticated reservations voiced about the first second. Cosmological evolution is the story of the expansion and cooling of the universe. This consensus has been reached in two distinct stages. Reference has already been made to the competing model proposed by Herman Bondi, Fred Hoyle and Thomas Gold in 1948, in which the universe was seen as expanding, but in fact locally stable and of infinite duration, in that matter was being created continuously, so as to balance exactly the rate of expansion.

However, at the beginning of the century, Albert Einstein had presumed the universe to be in equilibrium, neither expanding nor contracting. To balance the force of gravity on the very large scale, he had introduced into his field equations the repulsive term Λ quite gratuitously. In the 1920s, Edwin Hubble's work on cosmological red shift had demonstrated that Einstein was in error. The universe is expanding. The big bang model allows us to trace back this expansion to a state at which the universe is both very compact and very hot. It also means that, in the conventional model at least, the universe has a definite age lying within the range of ten to twenty billion years. This range reflects our ignorance of the exact rate of expansion H, such that H is generally taken to be within the range

$$50 < H < 100 \text{ km/s}^{-1}/\text{Mpc}^{-1}$$

In what follows, I will take the age of the universe as fifteen billion years, after Barrow (1983).[17] It is now possible to mark up one or two crucial points in the story of cosmic evolution. (The timescale used throughout is seconds.)

We now stand at a point $\sim 10^{17}$s. Evolution has been divided into two very different periods indeed. The first 1000 seconds of the universe is crucial. However, after the initial period of intense activity, there was a long period of uneventful cooling in which the universe was saturated with radiation and, hence, opaque. It becomes interesting again only as matter and radiation decouple at $t > \sim 10^{12}$s.

From this point onwards, the universe looks familiar in that astronomical processes begin. Let us look at the astronomical era first.

The first 1000 s had left the universe as a radiation bath containing hydrogen and helium in a set proportion. From approximately $t = 10^{13}$ s, a process of condensation began, which made possible the stable environment of the present biosphere. Life on earth requires complex elements to have been generated; condensation of these heavy elements into planetary systems and then a long period in which the potentiality for life from simple building blocks was in fact realised. This process involves at least two generations of stellar production. The first generation could burn hydrogen and helium to produce the heavier elements, but could not produce planetary systems, as the heavy elements would be trapped within the stellar interior. The dispersal of heavy elements through the explosive processes associated with supernovas could then be followed by a second generation of stellar formation as a basis for planetary systems.

While so stated, this process seems simple, but it presumes much. Firstly, stars must be able to form in sufficient density to enable the production, dispersal and reagglomeration of the heavy elements. Secondly it presumes that the heavy elements are such that they can combine into complex molecules which both self-assemble and then carry information. The first of these requirements will be further examined under the heading of 'fine tuning'. The second relates to the first 1000 s.

In the Planck era ($t < 10^{-43}$s) little is understood of the processes happening, save only that quantum gravitational effects must have been important. Between the end of the Planck era and $t = 10^{-33}$s, primeval particle formation takes place at very high temperatures. During the GUT era,[18] the characteristic energy was ~10^{15} GeV, while the monopole has a characteristic energy some four orders of magnitude greater, thus being a subatomic particle with the mass of a bacterium! As the temperature drops swiftly in this very short period of time, the symmetry breaks firstly between the strong and the electroweak forces and then between the weak and the electromagnetic forces. This symmetry breaking is the beginning of a hierarchy of structuring forces, such that one force produces one effect, while another force operates at a different scale. Loss of energy results in the growth of complexity even in the primeval universe. This symmetry breaking, the differentiation of three of the four fundamental forces of nature leads directly to the ability of the

atom to assemble itself. The strong force which governs the nucleus, because it is mediated by massive bosons, acts over a very short distance; the electromagnetic force which governs electron behaviour is weaker by far, but has a greater range. The strong force is some half a million times stronger than the chemical (electrostatic) binding force. Hence, it is only as the temperature of the early universe falls to ~4 × 10^3°K that the forces behind the chemical properties of complex molecules are realised.

During the first 1000 s three fundamental quantities are established: the baryon constant, the proton : neutron ratio and the hydrogen : helium ratio. The first two of these are somewhat technical. The third is easier. For stars to burn sufficiently slowly, there is a narrow band of possible ratios of hydrogen to helium needed. It approximates to 3 : 1. It is estimated that stellar fusion has produced only ~8% of the required helium. The great bulk of the universe's helium, so necessary to the evolution of life, came into being during the latter part of the first 1000 s.

To summarise, the evolution of the universe under the conventional big bang model falls into three phases of very different time scales. The Planck era lasts for 10^{-43} s; it is the era of the birth of gravity. The remainder of the first 1000 s – longer than the Planck era by forty-six orders of magnitude! – is associated with a swift drop in temperature and the differentiation of forces and particles leading up to the generation of a hydrogen–helium mixture already endowed with the potential to form complex, information-bearing molecules. After some half a million years of simple cooling, galactic evolution begins, occupying until now a period some fourteen orders of magnitude longer again, but depending upon the structures and forces realised during the first 1000 s.

The Big Bang and the Brain

Cosmological evolution shows a series of complex interdependencies. These will be elaborated upon below. However, even in terms of the conventional big bang model, it is worth noting that the physical properties of the human brain which, it was argued, are necessary (although insufficient) for freedom relate to virtually all periods of that process.

The quantum indeterminacy which characterises the synaptic cleft in neuronal synapses is of the same family of phenomena as the quantum fluctuations which characterise the Planck era and, under

some models at least, the symmetry breaking at the end of the GUT era. The differentiation of forces at widely different energy levels and the resultant properties of molecules to self-assemble and then encode complex information leads to the ability of brain cells to self-assemble at the foetal stage and to transmit information chemically and electrically. The content of mind and culture, however, is related to the generation of a flexible, challenging and changing environment, as is the very existence of the mammalian brain.

The lines of process interdependence run from the Planck era to the arrival of *Homo sapiens*. Their complexity and sensitivity should not be underestimated. The universe is a seamless garment.

Inflationary Models of the Universe

Unfortunately, the conventional big bang model of the universe is inadequate. It leaves unresolved a number of important questions. In the early part of the 1980s, a series of models based upon the notion of inflation emerged. There is a detailed if somewhat technical account of both Alan Guth's work on inflation and its supercession by modified inflationary models in Hawking's (1983) papers from the Cambridge Nuffield workshop. Briefly, inflation is the concept that at a point early in its history the universe, instead of expanding at a rate of the same order of the current rate of expansion, went through a period of exponential expansion. The effects of inflation are relatively well understood. It is plausible in terms of one of two mechanisms; phase transition or a tunnelling from a high-energy, metastable vacuum to a lower energy vacuum which might be either stable or itself metastable. However, it must be admitted that none of the current models are without serious problems.

What does inflationary theory achieve? The conventional model fails to deal with the following questions amongst others.

(i) Why is the universe at large scale both homogeneous and isotropic?
(ii) Since it is so, then why do galaxies exist?
(iii) Why do we apparently live in a Friedmann-type universe?

Let us look at each of these problems in turn.

On the largest scales, the universe is remarkably even. Homogeneity means that the matter is spread out so as to be of similar

density at all points. Isotropy means that the universe looks the same in all directions. The microwave background demonstrates that there is no directional preference to a factor of one part in ten thousand. It seems easy to say that the universe today merely represents the homogeneity and isotropy of the starting point (usually termed the boundary condition). There are two problems with this. Firstly, it is far from clear why the boundary condition should be regular. Secondly, parts of the universe are isotropic one to another, while being beyond each other's particle horizon. This means that any parts of the universe which are more distant from each other than ct_H can not be in communication with each other and so are causally disconnected. Under the conventional model, there can logically be no single cause of homogeneity and isotropy. Inflation can posit a dual solution. Mathematical models of exponential inflation show that it has a smoothing or damping effect sufficient to render a universe with chaotic boundary conditions homogenous and isotropic. In addition, the exponential inflation might well bring the whole universe within a single particle horizon. Homogeneity and isotropy are not overwhelmingly problematical for inflationary models.

However, homogeneity and isotropy bring another problem. If the universe was always as it now is in this respect under conventional models, then there is not enough 'unevenness' to promote the condensation of protogalaxies and thence of first generation stars.

It is mathematically likely that inflation can be coupled with rather exotic entities called strings, domain wall and monopoles. Each is a 'defect' which develops in the phase transition akin to a crack developing in ice as it freezes. These are all of high energy. The monopole, for instance, is of subatomic size but, with an energy of 10^{16} GeV, has an energy comparable to a freight train travelling at 60 m.p.h. Strings are the one-dimensional variant of the species.[19] Because they can be very long indeed in a swiftly expanding universe and have a field extending to ~10^{20} cm, they are prime candidates for causing galaxies to form.

The third problem concerns the universe's topology. It appears that we live in the sort of universe described by Friedmann[20] – one with virtually zero curvature. There is no good reason why this should be the case. However, flat universes avoid some of the problems of curved space–time universes; the latter can result in a collapse to a singularity in far too short a time to allow the evolu-

tion of life. Einstein's field equations have a number of solutions which generate rather exotic universes of positive or negative curvature. (It is only fair to comment that some of these – for instance, the flat-space, torus topology small universe[21] – may be observationally difficult to distinguish from a Friedmann universe.) The flatness problem is just one example of the general problem of boundary conditions.

It is intellectually unsatisfying to conclude that we live in a Friedmann universe merely because the initial boundary conditions were flat, when there is no good reason for them to be so. What is more, for the universe to be flat to the degree observable today, it would have had to be fine tuned in the GUT era to flatness within a limit of 1 in 10^{50}. In exponential inflation, the curvature term would have decreased exponentially, thereby soon reaching a point approximating to the $k = 0$ of Friedmann space–time.

The need felt by cosmologists to make recourse to an inflationary model of the universe, despite its tremendous problems for theoretical physicists, evidences the complexity and sensitivity of the relationship between the life-generating properties of our universe and the narrow parameters needed to achieve these properties. Recourse to inflation is a prime example of what is more generally known as the fine-tuning problem.

Fine Tuning

The fine-tuning problem is essentially this. A considerable number of processes which are necessary to life depend upon the correspondence to a very high degree of accuracy of parameters such as the fundamental constants of physics, without these parameters being apparently related. The fine-tuning problem is addressed at some length by Davies (1982). His account is now a little dated; he does not appear aware of the inflationary scenario, for instance. Some of the instances may turn out to be resolvable, in that the apparent independence of parameters is disproved. However, there are too many instances for the problem to be dismissed. It is ubiquitous.

An interesting and relatively simple example of fine-tuning concerns the convective stability of stars. I summarise and simplify the argument set out in detail by Davies.[22]

The structure of a star is delicately dependent upon its ability to convey heat to the surface by radiation. When radiation becomes

dominant, the star is a blue giant; when convection is the chief mechanism for cooling, the star is a red dwarf. The Sun and a large number of other stars, inhabit a relatively narrow band of behaviour, in which radiation and convection are balanced. It is in this narrow band that stars that have the capability of generating a planetary system lie. The typical mass of a star – M_* – falls happily within this band of stability. The reason for this is that there exists an apparently accidental relationship between the relative strengths of gravity and electromagnetism. This results in a homeostatic regulation of the energy production at the core of the star relative to the energy from between the core and the surface. Omitting the mathematics of Davies' argument, we arrive at a requirement for convective stability such that

$$\alpha_G \approx \alpha^{12} (m_e/m_p)^4$$

This inequality is remarkably sensitive. Gravity on the left is compared with α the electromagnetic fine structure constant and thence to the relative mass of the proton and the electron. The electron mass is particularly critical, because of the factor α^{12}. Substituting numbers into the derivative of Davies' equation 3.8 *in loco*, we arrive at the comparison

$$5.9 \times 10^{-39} \approx 2.0 \times 10^{-39}$$

Davies concludes

> Nature has evidently picked the values of the fundamental constants in such a way that typical stars lie very close indeed to the boundary of convective instability. The fact that the two sides of the inequality are such enormous numbers, and yet lie so close to one another is truly astonishing. If gravity were *very* slightly weaker, or electromagnetism *very* slightly stronger, (or the electron very slightly less massive relative to the proton), all stars would be red dwarfs . . .[23] (italics as in original)

Conclusion

What does the fine-tuning question mean from the theist's point of view? It is certainly not a licence for apologetics; a variation of the

weak anthropic principle will always counter such a move.[24] Rather, the implication is that, granted the existence of God, the universe shows distinct qualities of being very finely adjusted to its primary purpose of allowing life to evolve such that beings might be free. The larger the number of parameters and the more finely tuned they are, the more plausible it is that there are costs built into the process that are unavoidable. The overview of cosmology indicates that the basic parameters behind the evolution of the cosmos are indeed complex and fine tuned. The inevitability of natural evil is thus rendered more plausible.

COSMOLOGY AND TIME

People exist within time. Temporality, I have argued, is an important constituent of freedom. People become who they are because they are within time.

Time has a number of meanings. There is certainly a psychological time. For the theist, there is the question of 'time in eternity'. Science and in particular general relativity theory has talked of time as a physical entity. Space and time are inseparable. Space–time is a continuum. It is subject to distortion by intense gravitational fields. Moreover, quantum theory reminds us that four-dimensional space–time, while patently an aspect of everyday experience, is not the only space–time to be considered. Grand unification requires a minimum of ten-dimensional space–time. The 'spare' dimensions are often thought of as having 'rolled-up' during the very early universe, so that they are now not evident. The notion of a singularity at the birth of the universe implies that space–time is itself created at the α point. It may not make sense to talk of space and time prior to the singularity.

Philosophically, the question is put more carefully. Is time as an entity in its own right to be granted physical reality or is it merely an epiphenomenon of things and events?

This question is addressed by by the European philosopher of science, Henry Mehlberg.[25] His argument from quantum theory is highly technical, but rests upon the stringent assumption that time may only be regarded as real 'if this follows logically, however indirectly, from reliable observational findings'.[26] Mehlberg's anti-relational conclusion that time exists as a physical entity is of interest to us as a footnote to this chapter: if time is a physical existent

and also a factor in human freedom, then the creative process which cosmology describes also gives birth to time itself. Without this or some functionally equivalent process, time and, hence, human freedom would be wanting.

SUMMARY

(a) Many of the physical substituents of human freedom present in the brain rely upon processes in biological evolution which also are sufficient for certain natural evils.

(b) Many of the physical substituents of human freedom present in the broader environment are also sufficient for certain natural evils.

(c) It is not demonstrable that every example of natural evil is necessitated by the requisites of human freedom. However, the degree of complexity of causal interrelationships and the interdependence of early and late processes in evolution reduce very considerably the likelihood of this being a major problem.

(d) The complexity and fine-tuning of cosmological parameters add to the plausibility of (c).

8

The Necessity of Natural Evil

THE MODALISING OF A SYLLOGISM

At its simplest, the outline argument of this book can be set out as a hypothetical syllogism thus:

$$G \supset F \quad (11)$$
$$F \supset \Sigma a' \quad (12)$$
$$\underline{\Sigma a' \supset \Diamond N} \quad (13)$$
$$\therefore G \supset \Diamond N \quad (14)$$

This can be read, God exists (G) and hence there is human freedom (F); if there is human freedom, then there exists a set of true propositions about the actual world ($\Sigma\alpha'$) describing the physical substituents of freedom; these same substituents imply the possibility of natural evil (N). Therefore, the existence of God implies the possibility of the existence of natural evil. This conclusion is somewhat stronger than the one sought by apologists, that God's existence is consistent with natural evil. The argument is formally valid. However, as stated, it deals in contingencies. It is little more than a description of how the world actually is in the theist's view. It is an adequate defence, in Plantinga's sense of the word. The argument describes a state of affairs, S, such that, once the first line is granted *ex hypothesi* and the inductive arguments from observation which underlie lines two and three are admitted as adequate, then this description of the actual state of affairs is good evidence for the reasonableness of seeing the state of affairs as necessary.

Conclusion (14) is merely a statement of a contingent fact. This is strong enough for a defence,[1] for a demonstration of the reasonableness of believing that God-given freedom carries with it the inevitable possibility of natural evil. To go beyond a mere defence, it is required that we examine the modality of each line in the argument – that is to say, whether each line of the argument holds

necessarily or contingently. For the argument to be fully modalised, each term in each line must be governed by a modal operator, such that the final line of the syllogism reads $\Box(G \supset \Diamond N)$. Within this, $(\Diamond N)$ needs to be read as natural evil being stochastically unavoidable.

For the conclusion to be necessary, *de dicto*, each of the premisses must be necessary. (*De dicto* and *de re* necessity are explained below in the second section of this chapter.) The modality of expressions (11) and (13) are not particularly problematical. In the argument offered on human freedom, it is taken to be the case *ex hypothesi* that God, by virtue of his nature as expressed in his creativity, specifically aims to bring about creatures who have creaturely freedom sufficient to mutuality with their creator. The necessity governing expression (11) is definitional. Within expression (13), the relationship between the substituents of human freedom and natural evil is that they necessarily raise the probability of natural evil to such a degree that it is unremarkable that it exists and, more than that, practically unavoidable. While the processes involved are in part at least non-deterministic, the modality of the strict implication of that line is physical necessity. It can, of course, be argued that the causal relationship between the substrata of freedom and natural evil is unproven, in that the inductive arguments pursued in earlier chapter may not bear the weight of the conclusions reached. This will always be a problem for induction. However, once the adequacy of the inductive process is granted, then it can be seen that natural evil is physically necessitated by the substrata of freedom.

This now leaves the syllogism in this state:

$$\Box(G \supset F) \quad (15)$$
$$(F \supset \Sigma a') \quad (16)$$
$$\underline{\Box(\Sigma a' \supset \Diamond N)} \quad (17)$$
$$\therefore G \supset \Diamond N \quad (18)$$

The question at stake is the apparent contingency of expression (16). This expresses it as a matter of contingent fact that God, in order to create free creatures in the ways described, caused a material system in free process as the substratum of freedom to evolve. The denotation of $\Sigma\alpha'$ as a system in free process leads us to see the physical necessity of natural evil. If the argument $(F \supset \Sigma\alpha')$ is indeed non-necessary, then, it is implied, God could have done better. In possible worlds discourse, the free process is

equatable with a non-finite domain of possible worlds which fulfil the theological requirement of generating human freedom. If indeed God could have done better, then there must be another set of possible worlds in which human freedom does not result in the possibility of natural evil or in which the odds against natural evil are far superior to that in our own world.

The rest of this chapter examines the daunting task of demonstrating the necessity of expression (16).

However, before we embark upon this, it is useful to dispose of one possible objection to the whole argument.

A strong form of a successful argument would conclude that God can, in Plantinga's terminology, only instantiate a situation with the degree of risk evident in this world built into it. It is not that this is strictly the best of all possible worlds in the Leibnizian sense. Rather, it is the case that this world self-generated freely from a very large set of possible worlds, beyond divine control and that this whole situation is preferable to any other alternative. However, Plantinga (1988) discusses the probabilistic problem of evil. Could God have instantiated a possible world in which the chances of evil are less than in this one? It may be tempting to offer arguments about the conservative and highly successful nature of evolution, as though they indicated that this is one of the best possible worlds in the Leibnizian sense. This is to misunderstand the argument from free process. The process is free *ab initio*. It is no more reasonable to suppose that God can affect the probability of evil than that he can, by divine fiat, totally overcome it. In terms of the argument of this study, there is no probabilistic problem of evil. That is merely the penalty of Plantinga's way of thinking about evil.

THE ONTOLOGY OF POSSIBLE WORLDS

Could God have done otherwise? In order to demonstrate that the present state of affairs is necessary rather than a mere contingency, it would be required of us to show that there is no domain of possible worlds in which God both exists and achieves the theologically stipulated goal of creating free creatures capable of mutuality with their creator.

Possible worlds semantics is an area of logic which has experienced a considerable renaissance of late; witness Allén (1989). It has also become an area of considerable controversy. As with other

areas of learning in this book, it is important to clarify one particular area of controversy, so as to avoid relying upon an approach which is difficult to defend within a particular controversy. Plantinga (1974) is committed to the rehabilitation of the notion of *de re* necessity *pace* W. Quine and others.[2] I do not intend to adopt Plantinga's commitment to *de re* necessity in this chapter. Its worth is uncertain and its ontological commitments are not necessary for the argument I wish to follow. (In the Appendix, I argue that talk of God being necessary *de re* is incoherent.) *De dicto* necessity is relatively simple and beyond controversy. The notion simply states that a proposition is necessary when it is true in all possible worlds. *De dicto* necessity is about the truth function of propositions over possible worlds. *De re* necessity is about the existence of essences across possible worlds. Transworld identity is a problem in terms of fairly tame areas of debate; when it concerns the objects of divine action it is difficult to see, at times, what the referends of the debate are. The classic claim of *de re* thinking concerns my knowledge that an object in one possible world is the same object as exists in another possible world. This is, at a naïve level, a useful linguistic approach. It prevents the exchanging of counter-factual conditionals which do not intuitively make sense because they have lost touch with the actual world. It is my personal conviction that such claims about necessity *de re* are best read as linguistic conventions, although some of their referends have a necessary existence in much the way that numbers are said to have. It is likely that talk of *de re* necessity can be reduced to *de dicto* discourse. Whatever might be the case, those who are committed to a full-blooded *de re* discourse are also committed to essentialism; they do not talk of the linguistic propriety of the content of counter-factuals, but rather express an ontological commitment to objects as possessing essences. Essences are transworld properties which, being true in every possible world in which the object exists, are non-contingent. It is my intention not to engage with the controversial notion of necessity *de re*.

Essentialism is beguiling to the imagination because it allows one to use an infinite supply of objects which 'really' exist in other possible worlds. This stance is to be rejected both because it is wrong and because its use is unsafe in terms of Occam's razor. Therefore, the meaning of possibility needs to be clarified. Essentialism as an ontological commitment of an extreme sort seems to suggest that all things are possible that can be imagined – and more besides. If this is not the case, what is meant by possibility? This

question, so often ignored, I will develop in the next section of this chapter. Until then, one brief observation is needed.

I believe that the following statement is true:

$$\exists\ (\Diamond\Diamond S)\ (\Diamond\Diamond S \supset \sim\Diamond S) \qquad (19)$$

This will be recognised as standing outside of Lewis' S5, with its theorum:

$$(\Diamond\Diamond S \supset \Diamond S) \text{ (the principle of reduction)} \qquad (20)$$

The reason that expression (20) is a valid theorum of S5, that contiguous modal operators, if identical, can be reduced, is that, in S5 formally identical modal operators are taken to be in fact identical. In other words, expression (19), which says that there are possibly possible worlds which are in fact not possible, attributes different meanings to the contiguous possibility operators.

The first can be taken to be what Plantinga refers to as broadly logical possibility – that which we might conceive to be possible *prima facie*. The second sort of possibility includes within it a principle of parsimony; not all that is possible in a broadly logical sense deserves to be treated as 'really' possible. I will call this more restricted form of possibility 'material possibility'. What the restrictions might be upon material possibility which distinguish it from broadly logical possibility will need to be carefully specified, as they are an important step in an argument for the necessity of the actual world.

IS THERE AN *A PRIORI* ARGUMENT FOR NECESSITY?

Throughout the remainder of this chapter, I shall discuss sets of possible worlds, so as to assess the viability of arguments that there is no set of possible worlds in which God could have done otherwise in a sense which affects the theology of evil. Therefore, each of the sets of possible worlds fall within the domain of possible worlds in which the proposition 'God exists' is true in the required sense. I shall designate four sets of possible worlds *A*, *B* Γ and Δ, respectively, such that each excludes the other three and all four together comprise the whole domain in question. The question of the necessity of natural evil can be seen as a matter of whether

there is a possible world within any of these sets in which it is a true proposition that God could have done otherwise than he did, so as to mitigate natural evil. In this section, I shall put the case that there is no available *a priori* argument to this effect. In the next section I will examine two arguments for necessity *a posteriori* one of which will be seen to have some credibility.

Firstly, we will specify the contents of the sets A–Δ (alpha through to delta), and in specifying Γ and Δ, we will establish the meaning of material possibility.

The distinction between the four sets is that each is possible in a broadly logical sense, but each differs from the other three in terms of material possibility.

Set *A*

This set can be understood either as a non-finite, non-empty set or else as a set with just one member. It contains just those possible worlds which would exist if God were in fact omnipotent and every single state of affairs were ruled by God directly. There would be no detail that was not attributable to the will of God. If *A* is seen as having but one member, this is to insist that God's will is uniform and necessary and, thus, admits of no other broadly logical possibilities within the set. The conditions of material possibility within the set are also interesting. Since God is the cause of every state of affairs, then the set lacks material possibility, because there is no material causation, in any sense of that word within the set. If God in his omnipotence is the cause of all, then he causes both necessarily and sufficiently.

This set is of no importance to us, since it is, by virtue of my argument about the nature of freedom, necessarily devoid of creaturely freedom. However, it will be useful to clarify the compatibilist argument put forward by J. Mackie (1955) and others, which we can examine within the set Γ.

Set *B*

This I designate to be the set including all possible worlds which are heterogeneous with respect to the actual world in terms of the criterion of material possibility. I will argue that sets Γ and Δ are homogeneous with one another and include the actual world, in terms of material possibility. In *B*, there will be those possible worlds

in which materially possible alternatives are seen to be possible because of very different but coherent substrata – laws of nature or whatever[3] – from those which exist in the actual world.

Since I will argue that I have already established that God could not have done otherwise in any of the other three sets, then set *B* will be that set in which God could have done otherwise, if the relevant facts discussed above are indeed contingent. Therefore, it would be an adequate proof of necessity to demonstrate that set *B* is void.

Set Γ

This set contains the actual world and all other possible worlds homogeneous with it in terms of material possibility and boundary conditions. It is this homogeneity which is crucial to our argument.

Each possible world set has a set of boundary conditions: these are those conditions which are logically prior to all else. In the actual world, this would be the big bang or whatever, in that all possibilities that are instantiated in the actual world stem from the initial moment of creation. I intend the notion of boundary conditions to be a concept of logic rather than cosmology. I do not necessarily adhere to a particular theory of creation at this point. Any 'point of origin' – even infinite, constant existence – is a logical boundary condition.

To the extent that the above argument from cosmology and evolution is correct, we know that the outcome of the boundary conditions of the actual world is that it exists as free process. Free process is such that God could have done no other, because all that exists is self-generating, after the initial boundary conditions are instantiated.

The notion of free process is the key to the meaning of material possibility.

This set of possible worlds can be imagined as a tree – a cladogram. The point of origin is the boundary conditions – creation, if you will. From that point in time where $t = 0$, a free process takes place. At each point when one of a number of possibilities is realised, there is a branching in the tree. Why does a branching occur? Rigidly determined successions of events do not produce branchings, since, by definition, there is no alternative possibility where determinism is truly rigid. At each point that it is true that things could have been otherwise, there is a branching. Branchings happen at

all points that events are not rigidly determined. At one end of the spectrum of branchings, alternative possibilities occur due to quantum indeterminacy; in the middle, there are randomising events and coincidences; at the other end of the spectrum, there is the exercise of creaturely free will. There arises a material possibility only when the laws governing the substrata of the free process so allow. This is a far more limited notion than broadly logical possibility. It is not a matter of whether rough intuition would allow us to imagine a different situation, but rather whether we could specify a point at which our knowledge of the free process allows us to anticipate a branching.

Because it is a free process, then the branchings and the options taken at each branching are not within the range of divine omnipotence. Material possibility is about what is possible within the rules of the game.

Set Δ

This is similar to set Γ, except that it includes all possible worlds existing within the free process as we understand it, but having different boundary conditions. In short, set Δ possible worlds behave like the actual world, but have different boundary conditions.

This raises the question 'Could God have done differently by specifying different boundary conditions?'

This is a challenge to our argument which can be rebutted.

The force of this criticism is its challenge to the all-pervasiveness of the freedom of free process. Granted that free process is necessary for human freedom, could not the case be that God could have made a free process happen, but with such different boundary conditions that there were less natural evil or none at all?

This question will be readily recognised as a form of compatibilism applied to the probabilistic problem of evil.

Probabilistic arguments concerning natural evil, while seeming *prima facie* to be attractive, carry with them formidable burdens of proof. In order to make coherent a claim that there could be a free process in which evil were less probable, although not categorically excluded, it would be necessary to specify, firstly, how much natural evil there actually is. What might be our grounds of judgement? Plantinga (1974) has argued that this would be a meaningless claim.[4]

There then remains the compatibilist question. Even if we could quantify evil within a probabilistic argument, is it coherent to talk

of God ensuring that a free process performs in one particular way rather than another? In its conventional form as debated between Mackie[5] and Plantinga,[6] the compatibilist fails to see that possibility is a restricted concept – material possibility – and that there is a genuine contradiction between the free process content of the notion of the branching of possible worlds and the idea that God could have done otherwise, at least to the extent that the possible worlds being considered by the compatibilist are homogeneous with actuality in respect of causal mechanisms. It is not my intention to venture further upon these hallowed debates.

The question of boundary conditions is a novel ways of making the compatibilist challenge. We might feel justified in intuiting that an alteration in the boundary conditions must produce an alteration in the resulting process. Not always so! The boundary conditions of the actual world are set to produce free process, because, I have argued, this is necessary for human freedom. Free process, by definition, has content which is made possible by the boundary conditions, but for which the boundary conditions are themselves determinately insufficient. If the effect of the boundary conditions is to generate free process, then there is no lever by which the gross outcome can be manipulated. The setting of boundary conditions in such processes is not determinative of the outcome of the process.

This is true in everyday life as well. It is possible to drop an egg so that it does not break. It needs to land on its end and with something less than the maximal force. If I set the boundary conditions as 'dropped end on', 'from six inches' and 'onto grass', then I can perform the party trick on many occasions. If I drop the egg from my bedroom window, it will probably break. Does this mean that an alteration of boundary conditions will always alter the chances of success? Since there is a small chance, but a real one, of successful egg bouncing from my bedroom window, is it lessened by dropping the egg from a high-flying aircraft? Counter-intuitively, the answer is no! Logical extension of the movement from six inches to twenty feet would suggest a correlation between height and success. This ignores the notion of material possibility. There is a material condition attached to falling eggs. They reach a terminal velocity beyond which they do not accelerate. It makes little difference that they fall from thirty thousand feet rather than twenty. Similarly, the alteration of one set of boundary conditions for another, as long as both generated adequate free process, would not produce a manageable change of outcome.

The material possibility element in boundary conditions in worlds homogeneous with the actual is crucial. We talk of a boundary condition for the universe as it is, but such talk veils the complete lack of clarity of how boundary conditions work. This is a question of theoretical cosmology. Either the very early universe was highly tuned – but how and by what means since there is the problem of the particle boundary[7] – or else it was chaotic – a preferred scenario on grounds of parsimony – and was 'smoothed out' by inflation. If the latter, is inflation part of the theological boundary condition? Could it have been absent? I think not. Inflation, like God, is necessary if it exists. In brief, the boundary condition of the universe as we see it bears little relation to the contents of the universe, but relates only to the instantiation of one of many possibilities of a universe with intelligent life coming into being at all.

Since it seems likely that the manipulation of boundary conditions would make little difference to the outcome of life in terms of the regulating of natural evil, then sets Γ and Δ of possible worlds can be regarded as the same set. Compatibilism does not work in any possible world that is homogeneous with the actual world in terms of material possibility.

Reviewing the three sets of possible worlds, we can see that set *A* does not fulfil the criterion of free creatures. All is divinely determined. It is not the case that there might be creatures likened to ourselves but bound by strings like puppets. Rather, there will be no mindedness at all. Our intuition about theistic determinism is often too weak. We imagine creatures like ourselves but restricted by God's force.

This is not an adequate account. Freedom is freedom to be as well as to do. The lack of materiality, of material possibility, in set *A* would result in the impossibility of creatures like us existing at all. Imagining what it would be like in a theistically determinate universe is logically rather like imagining what it is like to be a bat. As Nagel (1974) points out in a celebrated essay,[8] we too readily imagine what it would be like for us to be a bat, when the question is what it is like for a bat to be a bat – if indeed it is like anything at all! Theistically determinate possible worlds are similarly beyond imagining, but are in any case devoid of creaturely freedom.

We can see that set Γ/Δ is such that God could not have done otherwise in terms of the amount or function of natural evil.

The question now focuses upon set *B*. If this set is empty, then natural evil is logically necessary. If not, then there is a possible

world that is not merely possibly possible in which God could have done otherwise and natural evil is contingent.

An *a priori* proof of necessity would need us to show deductively that set *B* is empty. The proof would have the form

$$\sim (\exists W)\ (W \text{ is a subset of } B)$$

Negative existentials are notoriously difficult to prove. When the denotation of the existential is as general as is this one, I can hold out little hope of proving it *a priori*.

TWO *A POSTERIORI* ARGUMENTS FOR NECESSITY

A posteriori arguments for necessity can never be deductively conclusive, in that they start with our experience and understanding of the actual world, rather than our analysis of all possible worlds. Nevertheless, they can be cogent.

The first argument – that from generality – I present as one which might seem sound in the light of the description in previous chapters of the relationship between freedom, evolution and evil in the actual world. However, the argument from generality fails. This failure is exposed by analysis of possible worlds into the four sets as proposed above. The second argument causes us to return to the analysis of material possibility and is, I believe, a coherent claim *a posteriori* that natural evil is indeed necessary.

AN ARGUMENT FROM GENERALITY

In the analysis of the relationship between freedom, evolution, cosmology and natural evil, emphasis was laid upon the nature of the creation as a seamless robe. The cosmological fine-tuning problem was invaluable, in that it underlined the dependence of all processes which facilitate human freedom upon the parameters of free process determined by the boundary conditions of the universe. These boundary conditions, far from determining a specific outcome of creation, allow a complex, stochastic process to take place, through which the living world self-generates.

In the absence of a teleological principle active within the actual world, it is puzzling, to say the least, that the conditions of the

universe are such as they are; life and hence freedom seem to depend upon a number of boundary conditions which are fine tuned – certain physical constants, for instance – while others – the initial configuration of the primal singularity, being one example – are chaotic. A third boundary condition – the existence of quantum tunnelling in a metastable vacuum leading to inflation – might have been a *sine qua non* of creation independent of any other boundary conditions.

In short, the physical substrata of freedom are so generalised, of such a complex interweaving of micro- and macrophysical events and of early and late events on the evolutionary time scale, that we might intuit that they are necessary by virtue of this very generality.

Generality is made up of complex interconnections with an equally complex admixture of the determined and the non-determined.

Generality suggests that the world could not have been otherwise, at least with respect to its potentiality for natural evil.

Such a proposition is true, but only with respect to set Γ/Δ of possible worlds, because generality depends upon a notion of material possibility homogeneous with that of the actual world. It is as if the actual world is a bundle held together by a net. The net is material possibility as we understand it in the actual world. Other possible worlds in set Γ/Δ are different bundles, but held together by the same sort of net, made of the same sort of twine intersecting at similar and familiar sorts of knots.

Set *B*, on the other hand, is made up of possible worlds in which material possibility exists in a very different way from that in the actual world and the rest of the set Γ/Δ. The argument from generality cannot be transferred to set *B* of possible worlds, simply because the conditions of material possibility are by definition not homogeneous with those of the actual world and so do not conform to the material possibility by which we described the actual world in the above chapters.

The argument from generality fails. It only applies to set Γ/Δ of possible worlds; it is therefore impotent to show that set *B* is empty.

IMPASSE?

The question of necessity has now been reinterpreted as a question about material possibility. If set *B* is not empty, then there exist possible worlds in which the conditions of material possibility are

both radically different from those in set Γ/Δ and are also such as allow for compatibilism. We will call this *B*-possibility. If there is such a thing as *B*-possibility, then natural evil is contingent. God could have done otherwise by instantiating a possible world of set *B*. To prove necessity, it is required to show that there is no material possibility other than that homogeneous with set Γ/Δ of possible worlds. In other words, we need to show that the concept of *B*-possibility is incoherent. At first sight, this looks just like the task of demonstrating *tout court* that set *B* is empty, namely the task of proving a negative existential. Impasse?

TOWARDS A TESTING OF *B*-POSSIBILITY

We are rescued from the impasse by a crucial difference between the two propositions:

α: the *B* set of possible worlds is empty

and

β: *B*-possibility is a coherent concept.

The proposition α is strictly knowable *a priori* in that it is a matter of pure logic as to whether a set of possible worlds is an empty set, without further definition. The proposition β is knowable by experience, by induction, although the experience is not of the actual world but of the possible world concerned. Proposition β is open to testing in a way that proposition α is not.

Let us return to the distinction between broadly logical possibility and material possibility, to the assertion that

$$\exists\,(\Diamond\Diamond S)\,(\Diamond\Diamond S \supset \sim\Diamond S) \qquad (19)$$

There are possibilities of the broadly logical sort, such that they can be imagined and discussed. However, I have claimed that it is an error to regard these all as materially possible. Can material possibility be tested for?

Philosophy in the 1950s had developed a discussion of a paradigm case, well exemplified in a paper by H.-N. Castañeda (1959).

Ludwig Wittgenstein, in his *Remarks on the Foundations of Mathematics,* had commented that some of our arithmetical practices were merely contingent, despite our strong intuitions to the contrary. In describing and defending Wittgenstein's argument, Gasking (1940) had argued that we could set up 'queer arithmetics' which defied our intuitions about the necessity of normal arithmetical procedures. Castañeda opposed Gasking's view by developing a procedure of testing it inductively. His paper consists of a series of sallies into various 'queer arithmetics' in order to demonstrate that they are internally incoherent; that there will be an inconsistency within any system. His argument is only inductive. It might be – unless there be shown to be a proof to the contrary – that there is one queer arithmetic unexplored by Castañeda which is in fact coherent. In concluding that

> Queer arithmetics in the sense defined cannot apply to the world. Thus, Gasking's thesis . . . is false, namely that we are free to use a queer arithmetic provided we introduce certain changes in our technique of counting and measuring or in our description of the facts i.e. physics.[9]

Castañeda (1959) has put forward a strong, inductive argument from what amounts to detailed possible worlds analysis of a negative existential, namely that the set of self-consistent, queer arithmetics is empty.

The distinction between the propositions α and β is this. Proposition α is so general that, not only is it knowable only *a priori* by logical analysis, but also it lacks specific enough denotation to be subjected to a test for inductive coherence. Proposition β is contentful enough to allow for such testing.

A GAUNTLET THROWN DOWN TO INDUCTION

Does logic provide us with such a method of testing?

Raymond Bradley and Norman Swartz[10] have described a procedure which they call possible worlds parables, which tests in the way we require. This must be distinguished from possible worlds testing. The latter procedure aims to test for the truth function of an ambiguous proposition, so as to eliminate that ambiguity. The former is designed to falsify a theory by constructing an account of a pos-

sible world in which there is a counter-example to that theory. When that theory concerns necessity, as does that stated by proposition β, then this is a powerful tool in that a necessary state of affairs cannot be falsified in one possible world without being shown to be necessarily false in all possible worlds. If there is a coherent account in terms of material possibility of *B*-possibility, in at least one possible world in set *B*, then natural evil is contingent.

What procedure would test for *B*-possibility?

B-possibility is material possibility, as opposed to broadly logical possibility. That is to say, it is possibility relative to the behaviour of the substratum of existence in any given possible world. However, *B*-possibility is also consistent with human freedom or its theologically functional equivalent, because set *B* of possible worlds, by definition, excludes any possible world in which either God or human freedom is lacking.

A possible worlds parable which established *B*-possibility would, then, need to render an account of the following.

(i) The substratum of existence in that possible world; what we might term the laws of nature for that world, which must, of course, be themselves internally consistent.
(ii) Creaturely freedom in that possible world, such that it is shielded by the substratum of existence from divine omnipotence.
(iii) The logical (rather than physical) point of origin of that possible world, in relation to God.
(iv) The coherence of the system made up of (i)–(iii) with the claim that God could mitigate natural evil.

In view of the considerable difficulties of rendering an account of the actual world under the heads of (i)–(iii), given our detailed access to knowledge of the contingencies of the actual world across a number of disciplines, it is highly probable that a possible worlds parable which successfully and convincingly fulfils this task in respect of *B*-possibility will not be forthcoming. However, there is nothing remaining now but to throw down this gauntlet to any who will attempt such a possible worlds parable.

Part III
The Problem of Human Evil

9

The Logic of Human Evil

The argument of this book so far has shown that that which is necessary for freedom is also sufficient for natural evil. In Chapter 4, it was argued that this line of reasoning is applicable *prima facie* only to natural evil. Yet in the age of Auschwitz and of mass destruction, human evil is of key interest to the theologian.

In considering some traditional arguments about freedom and determinism, it became clear that human evil was a problem just to the degree that it is based upon the process of decision making which Dennett claims to be soft determined, but which Thorp holds to be free because there exists in the human mind a 'third principle', a *tertium quid,* in which free will subsists. Human evil appears to be caught between two ontologies. If Dennett is right, then human evil is reducible to natural evil. If Thorp is right, something very different is happening. But what? At that stage in the argument, it would have been unwise to make any commitment to either Dennett's or Thorp's position.

In this chapter, I will argue that 'freedom versus determinism' is a false dichotomy. I will show that there is at least one view of human evil that allows us to see it as the necessary consequent of human freedom, in exact parallel to the necessity of natural evil for freedom. Throughout, I use the term 'human evil' rather than 'moral evil'. The latter is too closely associated with Plantinga's notion of contracausal free will.

THE STRUCTURE OF ARGUMENTS ABOUT HUMAN EVIL

Natural evil is necessarily entailed by its physical substituents, which are also necessary for human freedom:

$$\Box((\Sigma a') \supset N) \qquad (21)$$

If it is possible to extend the argument concerning natural evil to human evil, then H can replace N in expression (21). Is this feasible?

Let us review the precise meaning of $(\Sigma a')$. This term stands for a non-finite set of propositions describing physical conditions (under the terms of material possibility set out in Chapter 8) which necessarily entail N. At first sight, it might seem unlikely that H would be entailed by the same substituents. This objection is based on a misunderstanding of $(\Sigma a')$ under any holistic view of evil. In holistic theodicies, any example of N may in itself be incidental, but the sum of all cases of N is unavoidable on stochastic grounds because of the physical substituents of the universe. Thus, under the argument of expression (21), any particular substituent expressed by a particular proposition a'_x may or may not contribute causally to any particular example of N. It is the sum of all substituents which causes the totality of all natural evil under the stochastic meaning of $\Box (\Diamond N)$. Because $(\Sigma a')$ is a non-finite set, then it may entail both N and H in one of three ways. The set N may share with the set H all causal factors, some causal factors or no causal factors at all. As long as evil is seen holistically, this is a matter of indifference, since the sum of all causal factors of both N and H are members of the non-finite set $(\Sigma a')$. Because $(\Sigma a')$ is a non-finite set, it can be designated as containing all the causal factors of both N and H, whether or not these overlap, but $(\Sigma a')$ will always consist of propositions which interdepend due to the intricate nature of material relationships which were explored in Chapters 6 and 7.

That is to say, in this world and in any possible world which is a member of either sets Γ or Δ as described in Chapter 8, H and N have common substituents so long as H relates to its substituents in the way that N does. In what sense, then, can the following be true?

$$((\Sigma a') \supset N) \wedge ((\Sigma a') \supset H) \qquad (22)$$

If the determinists are right, all human evil is reducible to natural evil *tout court* on the metaphysical ground that freedom is illusory. Conjunct (22) is then tautologous and inconsequential. If Plantinga is right in defining freedom as contracausal free will, then the entailment $(\Sigma a') \supset H$ does not obtain, because there are no physical substituents to contracausal free will. Human evil can have the same set of substituents as natural evil if and only if human evil is demonstrably grounded in physical substituents in this world such that it is grounded in material possibility in all possible worlds in sets Γ and Δ.

Chapter 10 will demonstrate that it is feasible to see human evil as so grounded.

THE SEMANTIC CONTENT OF HUMAN EVIL

The entailment $(\Sigma a') \supset H$ invites us to see human evil as being based in the same physical conditions as natural evil. However, there are two ways of understanding this claim. It is possible to argue that human evil is merely a particular case of natural evil and that everything that can be said of natural evil applies also to human evil. This is a highly reductionist viewpoint. It sees human evil as determined by natural circumstance to such a degree that there remains no account of human freedom that is not trivial. Any non-reductionist account of human evil will make room for the whole question of decision making and effective moral responsibility, although without absolutising this process, without removing it from any relation to the causal net in the way that Plantinga does.[1] At the same time, it will take into account the physical bases of human evil and, by extension, of human personality as a whole.

Herein is the nub of the problem with human evil. In the case of natural evil, it was possible to avoid any detailed definition. The argument set out in the first eight chapters of this book can be applied to virtually any phenomenon that we might reasonably term 'natural evil'. The semantic content of the term is unimportant to the success of the argument. With human evil, it is different. The traditional arguments about free will and determinism point to a curious fact about human evil. Natural evil is always the result of an event. Human evil is often, perhaps always, the result of an action. Action is philosophically more complex than event, in that the notion of action has to do justice to the intuition that we humans create our actions as free agents; they do not just happen to us.

Any description of human evil in its evolutionary setting will need to specify the linkages between human action and the material substituents which make it possible, on the one hand and the semantic content of human evil, on the other.

What approach can be taken to a working definition of human evil? The Christian theologian must not entrap the notion of evil in the language or culture of Western, white theology or the theology of any other intellectual tradition for that matter. Evil is a concept

common to many cultures, faiths and traditions. Yet in each setting it will connote something different. 'Human evil' has a functional, anthropological connotation, on the one hand, and a range of specific connotations which cohere adequately with the themes and concerns of Christian theology, on the other.

For the anthropological perspective, let us return to David Parkin's comments cited in Chapter 2:

> evil refers to various ideas of imperfection and excess seen as destructive; but that these are contestable concepts which, when personified, allow mankind to engage them in dialogue and reflect on the boundaries of humanity.[2]

These few lines contain four key concepts.

(i) Evil is about perceived imperfection or excess which is destructive. This can apply to both human and natural evil. However, in terms of human evil we might expect greater cultural diversity as to what is either excessive, imperfect or destructive. The knife of the murderer and the surgeon have similar results, but only one is evil. A blood transfusion is positively good for most people, but for the Jehovah's Witness it is destructive. Human evil is a contestable concept.

(ii) Evil is personified. This is a crucial observation. It does not just refer to those strands of religious belief which pay great attention to 'the devil and all his works'.[3] Even those of us who would not usually talk literally of Satan tend to personify evil. The cancer sufferer needs to form and manage a relationship with the cancer. 'I hate and am disgusted by what is happening within me' is personification, a way of negotiating with the destructive, the irrational elements in life.

(iii) The notion of evil allows us to enter into dialogue with ourselves and so is a quest for meaning, either intellectual, affective or practical.

(iv) The quest for meaning is not merely a pragmatic exercise, but is closely bound in with the characteristically human intuition of self-transcendence which differentiates us from

other animals. This is most obviously seen in our awareness of our own mortality. The naming of some things as evil helps us to gain identity as human beings. The misuse of this naming – itself an evil – is dehumanising.

These four points together demonstrate that the function of the notion of human evil is to aid humanity in its seeking the cultural, mental and emotional ability to survive and navigate the existential limitations which we all experience. (The same is true of the notion of natural evil.)

The notion of, the feeling for, human evil allows people to project outwards the least edifying parts of our selves. If this projection is not dealt with it becomes unhealthy. It can be processed by a dialogue which leads to the reintegration and reowning of the whole of our humanity. In a sense, I am both Christ and Hitler. Neither truth sits easily with me.

The theological counterpart of this anthropological definition can be sketched relatively easily in broad brush strokes.

At the heart of the Judaeo-Christian tradition there is for the realist believer mutuality with God. Sin is the fracture of this mutuality. Evil is not sin. Sin is the violation of the relationship of the self with the other. Human evil is the distortion of the relationship of the self to finite others. The pre-critical intuition is that human evil is 'that which God would not want us to do'. Sin as a literal concept belongs to the realist because of the primacy for her of the divine–human relationship, but it would not be outrageous for an atheist to think of human evil as that which God would not want us to do, if He were to exist.

In short, the theological interest in human evil is that it violates normative interpersonal relationships. This makes a convincing parallel with the anthropological–existential view of human evil.

However, even within culturally homogenous churches in the West today, there is a notorious lack of consensus as to what might constitute normative interpersonal relationships. At a practical level, the ethics of sexual orientation are awash with dissent, for example. Philosophically, there is no common language for normative relationships between existentialists, liberals, neo-orthodox and postmodernists within the church. What roots might exist, if any, for the discussion of human evil and human relating which would also demonstrate the physical substratum of human evil?

THE EVOLUTION OF HUMAN EVIL: A PSYCHODYNAMIC INSIGHT

The cosmos evolved, as did the biosphere, the human species and the structures of the brain. Personality and personhood also evolve. This is one of the foundational claims of psychodynamics. If this claim is valid, then it links human evil with its material substituents exactly to the extent that human evil and good emerge from a simultaneously neurological and interpersonal system.

People are their brains, but brains also become people.

The first part of this truth links neuroscience with natural evil, while the second links human development with the emergence of human evil.

In Chapter 10, the work of Melanie Klein and some of her successors will be examined in detail. Yet the basic argument appeared in what is now an old but still valuable book – Erich Fromm's *The Heart of Man: Its Genius for Good and Evil.*

In the final chapter of Fromm (1965), the author sets out his claim that neither determinism nor libertarian free-will are adequate accounts of human decision making. He posits what he calls alternativism. His experience as a psychoanalyst convinced him that people are in practice torn between their helplessness in the face of their psychological processes and their power to take control of enough of these processes to begin to form a true or at least a truer self.

I do not believe that Fromm is right that his account is an alternative to both soft determinism and Thorpean free-will. I suspect that it is part of the lack of clarity of both soft determinism and Thorpean free will that Fromm's account could be rendered intelligible in terms of either position. The soft determinist would see both the slavery to the unconscious and the gaining of freedom from it as inherent in the determining matrix. The Thorpean might argue that the choosing to struggle rather than to be a victim is evidence of the mental *tertium quid.* Fromm's argument neither gains nor loses from either approach.

In essence, Fromm argued from a neo-Freudian perspective that people are constantly struggling for good or falling victim to evil because of the unconscious forces which underlie the human personality. He pays particular attention to the Freudian notion of the life and death instincts, of the genesis of narcissism and of the struggle between love and hate implicit in Oedipal experience.

It is not necessary to assent to the Freudian presuppositions of Fromm to grant his overall case. Human evil is intimately related to the very genesis of personality and of mindedness.

The intimacy of this link is important. Natural evil is about events and thus is linked with the evolution of the substrate of mindedness. Human evil is about actions and thus is linked with the evolution of personality itself. Human evil has its material rootedness at just the point that agency as we know it – be it under Dennett or Thorp's ontology – evolves within each human being. Personality evolves in each member of the species and not in the species as a whole, in exactly the way that the growth of the individual foetus mimics the evolution of the species phenotype.

THE STATUS OF THIS ARGUMENT

The next chapter will show that Melanie Klein and some of her successors have given a specific account of how the human personality with its propensity for good and evil evolves from the newborn child (or before) through to the mature adult. Of course, Klein's case is often contested in detail. It is nevertheless a coherent way of relating human evil to its material substratum. What is the status of this argument?

The case to be made must demonstrate that:

(i) the psychodynamic process described is necessary to the formation of human personality as this is envisaged by the concept of human–divine mutuality;
(ii) this same process generates human evils in a sense compatible with the anthropological and theological considerations above;
(iii) the psychodynamic process is a free and stochastic process. If this is not the case, then compatibilism becomes again troublesome.

If these three criteria hold, then the argument is formally valid as a substitution instance of the more general proposition:

$$\Box((\Sigma a') \supset H) \tag{23}$$

As this point, the argument has at least the force of a defence. It becomes even stronger when we note that even if the details of

Melanie Klein's are not accepted, there are parallel arguments from other traditions of developmental psychology which would also serve our case.

Underlying Klein's specific argument is the general case that infants are not adults and are not evil in the way that adults are. Therefore any responsible account of human maturation is likely to include an argument that attributes the origins of human evil to the developmental processes which are materially responsible for human personality.

There now exist two parallel propositions.

A: That which is necessary for human freedom is also sufficient for natural evil

and

B: That which is necessary for human personhood under a developmental perspective is also sufficient for human evil.

These correspond to the two entailments in the conjunct

$$((\Sigma a') \supset N) \wedge ((\Sigma a') \supset H) \tag{22}$$

All that remains is to assess the Kleinian and post-Kleinian argument against the three criteria listed above.

10

Freedom and Human Evil: the Evolution of the Self

INTRODUCTION

From the moment of conception to the moment of death, the human individual evolves. The newly fertilised egg, whatever its ethical status, is not in the usual sense of the word a recognisable person. Personhood emerges from more basic processes. There is an interplay of biological and sociological phenomena. Arguably, the interpersonal aspect of life transcends both of these.

This chapter aims to describe the evolution of the individual personality from the perspective of psychodynamics, particularly as seen in the work of Melanie Klein and some of her successors in object relations theory. Her views will then be linked with the emergence of human evil.

Klein's work serves only as an illustration, an invitation to enter imaginatively into the question of the origins of our personhood. As with much of the scientific material used in previous chapters, it is not necessary to show that her views are right, but only that they are feasible and fulfil the logical requirement of linking human evil to its material substituents. If Klein's work is rejected, then other parallel arguments can be made available, although Klein and modern object relations theory do have a particular attractiveness for the theologian in that they stress human relatedness rather than biological drives.

Psychodynamics stands on the border of science and the humanities. Some would argue that it cannot be seen as scientific because its hypotheses are not falsifiable.[1] Certainly the practice of psychodynamic psychotherapy is an art, based in practice more upon skill and intuition than upon hypothesis and verification. However, the underlying principles may well have a claim to scientific status. Freud was assiduous in making this claim for his own work. John Bowlby has most effectively argued that the art of therapy has a basis in human science and not mere metapsychology.[2] Broadly

speaking, psychodynamics is the study of human mental development as a key to understanding the personality of the human adult and by extension of the child. Historically, this study has been retrospective and closely allied to the therapeutic needs of patients. It is true that this perspective tends to skew the evidence a little, in that Klein and Freud for instance begin with the observation of selected adults and then form hypotheses about the nature of development. Bowlby (1988)[3] has been sympathetically critical of this retrospective approach and has relied more upon ethological material. However, psychodynamics as a set of theoretical constructs is contentious at a level of detail which is below the level of interest of this argument. For its practitioners, it is being continually verified in its therapeutic efficacy, but like all inductive processes of verification this is inconclusive.

For our purposes, psychodynamics is a useful way into an imaginative grasp of the relationship of personhood to evolution.

HUMAN EVIL AND AMBIVALENCE: A CASE STUDY

Jamie Bulger was a toddler who was abducted from a shopping centre and murdered by two other children. Being aged eleven and twelve the perpetrators were just deemed to be legally responsible for his murder. They had apparently taken him through the streets of the city to a railway embankment where they killed him. They were convicted of the murder and detained indefinitely.

The case held the public imagination in a unique way. The media witnessed to and contributed to a number of elements in this case. There was horror at the death of an innocent child. This was made worse by the bizarre youthfulness of his murderers. The questions that emerged started with a sense of shock that 'we could live in a country where this sort of thing could happen'. The public then raised the part played by video nasties in the mental state of the perpetrators. The trial of the two boys evidenced behaviour of shock, denial and mutual blaming which were painfully redolent of my own son caught doing something a bit naughty. Could they have been my sons? Or were their parents/school/district particularly and unusually to blame? Why were two young boys seen by a number of passers-by mistreating an infant, yet without any one of those passers-by intervening?

I have no moral right to minimise the pain and rage of the Bulger

family. However, one notable aspect of the case has been that once the two boys were committed into custody, there was then a number of television programmes and newspaper articles pointing out that they would live in civilised surroundings with some luxury goods available to them. This was then followed by a number of people campaigning to make sure that the boys served very long sentences or even were never released again into society.

In this episode of shame where is evil?

Let us note that there are uncomfortable echoes here of the Holocaust. Evil is not extraordinary but insidiously normal. Those who tortured and killed Jews in vast numbers, who desecrated and dishonoured their bodies, who lived with the perpetual stench of death and human despair also came home to have dinner with their families, listen to Beethoven and play chess. The killing of Jamie Bulger is disturbing for the very reason that it defies us to separate the exceptional from the everyday. Where or what is evil?

That an infant should suffer and die is certainly evil. None would gainsay. Dostoevsky's Ivan Karamazov saw the death of babies on Turkish bayonets as the epitomy of evil. Children ought not to suffer because in a profound sense all children are our children. We respond to them. They are others like ourselves, not subhuman, not alien, but our vulnerable selves needing protection and love. This parenting response that would have us name as evil all that hurts children is patently worthy and good.

The two children who killed Jamie Bulger notoriously did not elicit this response in the public mind. Yet they too are children.

Jamie Bulger would not have died if . . . If what? . . . if we did not trade in video nasties? If we brought up our children so that they were not disturbed? . . . living in a bad environment? If we lived in a society where adult passers-by intervened to save a toddler. The guilt feelings of adult society are subterranean and dark.

Where shall the badness rest? When we are desperate to know the answer, then is the time of the scapegoat. The perpetrators of the crime are such. Listen to the message. Children! Children murdering. It would have been better if it had been an adult, one of us. We would have somehow understood then. But children!

Even so, the children who lived on became 'not one of us'. Separate and alien. Allow them no television or posters. Think not to rehabilitate. They must be away for always. Listen!

Where is the evil?

It seems that evil may be made actual in the world at any point

that human beings so completely split off the bad from the good as to violate the oneness of our selves with all others. People then become non-people. That which two boys so tragically did to Jamie Bulger, the scapegoaters need to do to them.

And you shall love your neighbour as yourself.

THEOLOGICAL AND PSYCHOLOGICAL ROOTS OF PERSONALITY

It is an underlying presupposition of this work that the human race was made by God to be in communion with him. There are some touchstones which may be briefly mentioned as to what is necessary for a creature to have the capacity to be in communion with God. These will serve to illustrate the basic compatibility of Melanie Klein's work and of object relations theory with our theological presuppositions.

Our relationship with the other is foreshadowed by our relationships with others. The finite and fleshly bears the image of our relating to the divine.

Instinct – although a more difficult concept than some biologists would care to believe – is a mechanical property. Instinctive reactions are stereotypical. Personhood must have emerged from instinctive behaviour to a new level of spontaneity. There is a material requirement that a person has sufficient complexity – neurological and psychological – to be able to act unpredictably. Spontaneity is not enough. Plantinga points to the need for humans to exercise moral responsibility. God and creature are in communion when the creature can offer back to God his life in terms of accountability. Yet even accountability can be impersonal, more to do with the law than the spirit.

The personal begins with the second commandment, that we recognise that others are as ourselves. We need to be able to love. Both love and the recognition that others are as ourselves are learned behaviours. They depend upon the ability to perceive if not conceive that our primary experience can be organised in such a way as to counter early narcissistic tendencies. Love, far from being just a single emotion, is also a complex and sophisticated cognitive stance.

For Christian tradition, the ability to change is a key element in relating to God. Repentance, becoming Christ-like, living anew, seeking the Holy Spirit, responding to God's self-emptying by

emptying ourselves into union with him are all familiar enough religious ways of thinking. All require that we can change and be changed at a high level of personality.

This briefest of outlines of the theological requirements of personhood illustrates that mutuality with God requires that we emerge from lower levels of behaviour through a number of different stages of sophistication. Variety of behaviour is a lesser phenomenon than the ability to make moral decisions. This itself is both dependent upon and lesser than our ability to conceive of ourselves as one amongst others. The ability to be responsive to change and formation is a life's work for many who pursue the path of faith and of personal growth.

There is a similar heirarchy of personhood in some psychological accounts of personality. Striking parallels with this theological sketch can be found in the works of Richard Lazarus and of Harry Guntrip. Lazarus[4] is of interest in that, from within the discipline of academic psychology rather than psychodynamic therapy, he is both keenly aware of the impact of Freud's insights but also committed to a cognitive–behavioural (stress management) approach to personality. His 1963 book, *Personality and Adjustment* offers a coherent and concise psychological view of personality as a precursor to his discussion of differing forms of personality theory. Guntrip, by contrast, is both a therapist and a theologian, a Congregationalist minister. He stands as a representative of post-Kleinian object relations theory and as the person who most clearly stands out against Freud's instinct theory.

For Lazarus (1963), personality qualities and structures begin with consistency or stability. He is interested in behavioural consistency, I suspect because this is easily measured. It does matter that for a person to have personhood that they should behave in a fashion which is characteristically their own. Although it is at a low level in the heirarchy of personality structures, behavioural consistency may well be an objective correlate of the subjective experience of knowing who we are, of having a self-identity. This very stability makes for the persistence of good and of evil. A personality which behaves narcissistically will not change without due cause. The subjective frame of reference of the narcissist is that their reactions are appropriate and therefore consistent. Even at this level, the fact of personal existence entails the necessary possibility of the persistence of human evil.

However, if stability were the only force then the human

personality would ossify. This, Lazarus points out,[5] is quite a frequent occurrence in old age. Personality ossification accompanies brain changes associated with ageing. While it is tolerable in moderation in the old, such rigidity would be evolutionarily disastrous in the young. The race survives by adapting to new circumstances. There is a needful balance between stability and change.

As with much else in learning, change is easier in the young. Therefore, much of what we identify as stability has to be established in the early years of life, although later experience has its effects. The consequence of this balancing between stability and change, be it on evolutionary–survival grounds or on theological–ontological grounds, is that we as individuals are liable to be very sensitive to experience in childhood, even though the fruits of that experience may not become manifest until later life. It is part of the necessary pattern of personality formation that the capacity and tendency for good or evil is set fairly firmly, well in advance of good or evil acts being perpetrated. Psychologically change is as much a cause for human hope as it is christologically.

Richard Lazarus acknowledges the impact of social factors in personality development, but focuses strongly upon the relationship of physiological and psychological processes.[6] Many would hesitate to go as far as Lazarus in this. However, his work seems to be a forerunner of the deep insights of Gerald Edelman into brain function, as set out in Chapter 6. Edelman points to the heirarchy of structures in the brain. Complexity leads to consciousness, through processes of internal self-monitoring. The brain is not a single organ, at least in informational terms. It is a conglomeration of information processors. Yet consciousness gives the illusion of being unitary. In the same way as this is neurologically true, Lazarus points out that personality depends upon the integration of diverse informational structures which are persistently balanced between stability and change. We seek in life to integrate the motivational, emotional and cognitive aspects of our selves.[7] He describes the opposite of integration as regression. Psychodynamic theory would point out that human beings are in a continual flux of integration and regression, rather than a smooth development from one to the other.

The overall picture begins to look familiar. The human personality is a structure which, in order to possess those qualities which both theologians and psychologists can describe as rendering us

human, has to maintain a delicate equilibrium between stability and change, between integration and regression and between neurological homeostasis and the overall ability to adapt. That which we call evil is stochastically bound to be part of this complexity and delicate equilibrium. There are marked parallels here between natural and human evil.

Object relations theory is particularly equipped for the task of analysing the emergence of personhood. In this, it contrasts with the work of Freud. The point is made at some length in Guntrip (1977).[8] Harry Guntrip criticises both Freud and his disciple Hartmann for their emphasis upon adaptation in psychoanalysis. Adaptation, argues Guntrip, is a strictly biological concept. To focus on it is to reduce human experience to human behaviour and thus to bypass the subjective and experiential sides of being human. The focus needs to be elsewhere:

> In studying human living, 'adaptation' is replaced by a higher concept, that of *meaningful relationship* in terms of values. Hartmann almost saw that when he said that neither autoplastic nor alloplastic adaptation 'is necessarily truly adaptive.' What I think ought to be said is that neither is necessarily truly significant for interpersonal relationships. Adaptation can be raised to the level of personal relationships, but personal relationship cannot be reduced to the level of adaptation.[9]

Object relations theory is thus antireductionist in respect of what it is to be human. The nature of humanity cannot be reduced to biological categories just because in the evolution of personality true novelty emerges. (There are some correspondences here with Edelman's work on the brain operating as a complexly self-monitoring Gestalt.) For Guntrip, this emergentism has philosophical and theological significance:

> Psychoanalysis has to understand the person, the unique individual as he lives and grows in complex meaningful relationships with other persons who are at the same time growing in their relationships with him. This mutual living arises out of biological conditions and goes on in sociological conditions, but it achieves a spiritual independence of both on the level of its own special significance, that of the person-ego in personal relationships.[10]

Guntrip's own vision of object relations theory has obvious resonances with the theological concerns of this study, but is, I believe, defensible as a viewpoint of human existence without reference to religious faith.

To conclude, object relations theory insists that we acknowledge 'how profoundly the struggles of the infant to grow a real self determine the nature and state of every problem the adult experiences'.[11] The emphasis on relationships and the concomitant rejection of biological categories as wholly adequate for the description of humanity is a key to understanding not just general propositions about what it is to be human but in particular what it is to be dysfunctional. The roots of human evil are in the soil which nurtures the very emergence of personality.

APPROACHING THE WORK OF MELANIE KLEIN

This section aims to set out as simply as possible the basic principles of Kleinian thought, so that detailed attention can be given later on to particular papers of hers. I am much indebted for this summary to Julia Segal (1992).

Melanie Klein, like Sigmund Freud, developed her theory of personhood out of her clinical experience. The basis of all that Freud did stems from his belief in the existence of the system unconscious, which in turn stems from his listening to his patients' dreams and his subsequent consideration of what he called the psychopathology of everyday life, of which parapraxis – the so-called Freudian slip – is the best known. Similarly, Klein's view of the development of personality was formed by two clinical insights. She rejected the Freudian developmental stages – oral, anal, genital and so on – because they seemed too rigid but also because she perceived that they did not do justice to the very early experience of babies. Klein's description of very early childhood can seem somewhat fanciful to the lay person at first sight. It is important to keep in view the fact that her starting point was to attempt to give an organised account of some of the clinical phenomena which she was encountering.

Klein was a pioneer of the psychotherapy of children and contributed much in the recognition of the existence of childhood schizophrenia. Time and again, she found that she was dealing in children of all ages with deep images of cruelty and horror of

parents, with a strong sexual content. (This was a lot broader than the evidence for sexual abuse which Freud witnessed and possibly suppressed.) Whereas Freud tended to see childhood experience in terms of what the parents actually did, Klein believed that the basis of childhood is what she termed 'phantasy'. (In the specialist sense of this word as used by Klein, it is conventionally spelt with a 'ph'.) Phantasy is based upon the fact that the young baby has experiences before he has the conceptual apparatus with which to process them. Phantasy is, if you will, a best guess at what is going on by a baby who profoundly does not conceive of the world as we do. It is important to realise that this is a primitive type of thought – paralleling Freud's primary thinking – with different rules from the secondary thinking of the maturing person. Phantasy is not everyday fantasy. Rather it is a language with a grammar of its own that enables a processing of very early experience. If all reality is socially constructed, then phantasy is the most primitive first attempt to construct a reality.

Object relations theory and to some extent Melanie Klein rejected Freud's notion of drives (Trieben).[12] The prime category, the main human impulse, is not sex, hunger, life or death, but relationship. Thus, from the first moments of life after birth, the person is seeking to form relationships. Phantasy is the mental process by which these relationships are understood.

Klein draws a crucial distinction between the first three months of life and the second three months. She points out that at or about the fourth month even the quality of the infant's cry changes, becoming less piercing. In the first three months of life, the infant can only relate to part objects. (Object relations theory generally uses the term 'object' to refer to any focus of libidinal desire. Thus, objects can be part objects such as the breast or whole objects such as the mother. Objects can be external – the real mother in the real world – or internal – the phantasy mother within the infant psyche.) The infant experiences the mother's breast as an object of desire. Because it takes away the pangs of hunger, it is good, but because it frustrates by not being available on demand, it is bad. In the first three months, the infant cannot cope with this ambivalence. Objects are experienced as persecuting the infant, threatening its existence at a deep level. Objects are split. Typically an infant in the first semester of life might 'have' four breasts as libidinal objects – the good and the bad breast in the outside world and the corresponding good and bad breasts which are internalised.

The infant feels murderous rage against the bad objects and wants to destroy them. The splitting process is an early defence mechanism to allow the infant to survive this rage, lest the destructive tendency be turned completely against the self.

In the second semester, the infant learns to integrate the split-off objects, so that instead of an external bad and good breast there develops the concept of '(m)other'[13] as a separate individual much like the self, who has needs and demands of her own. The rage is moderated by the realisation that the world is ambivalent and that the 'bad' can thus be survived.

If this transition from a primitive to a more sophisticated way of processing reality in terms of relationships were confined to the first six months of life, it might be largely irrelevant. However, Klein postulates two positions – again a technical phrase of hers – which are open to us throughout life. The paranoid–schizoid position represents the more primitive way of processing reality. Klein originally referred to the paranoid position – the bad objects feel as though they will destroy the infant – but under the influence of W. R. D. Fairbairn[14] she called it the paranoid–schizoid position, because the infant has to split off the bad from the good to counter the paranoid threat to the self. The second position is the depressive position. This represents the integrative process of the second semester. The adult is capable of looking at the ambivalences of the world, of experiencing sadness and reactive depression because of this in-touchness with reality, but is also freed from the defence mechanisms associated with the paranoid–schizoid position. For Klein, the depressive position was a sign of mature adulthood, to be aimed for despite the depressive inplications of facing reality. In this Klein is no great optimist about human experience. There is no ideal state, but only a facing or a defending against the ambivalences of life.

The two positions are not linear in progression. Rather throughout life the person moves back and forth between the two. The mature person is not wholly in the depressive position. Depressive position phenomena outweigh those of the paranoid–schizoid position.

Klein's clinical case work shows a deep understanding of how paranoid–schizoid phenomena manifest in disturbed and psychotic children and how therapy can move the child on to the depressive position in terms of specific experiences or phantasies. Phantasy is closely linked with Klein's view of children's understanding of sex.

She believed, *pace* Freud, that children had a basic awareness of the penis, clitoris and vagina from a very early age. They are also unconsciously aware of their parents' sex lives, while often misinterpreting an act of love as an act of aggression. Typically, the faeces are seen as children, because they are inside the mother. The child can either want to give or receive a child or can be violently jealous of the faeces as rival siblings. In short, Klein's clinical case studies are strewn with material about rage, destruction and conflict out of the paranoid–schizoid position.

I will suggest below that most of what we call human evil comes out of the paranoid–schizoid position. If this is the case, then why do people remain in that position?

There is no clear-cut answer to that question, but there are four possibilities, all of which I believe can be true at times.

(i) The neurological equipment at birth is inadequate for the finding of the depressive position by the fourth month, resulting in developmental problems with the infant.

(ii) There is some trauma within the infant which prevents an adequate transition to the depressive position. For instance, the absence of the breast may go on for so long that rage moves to despair and detachment. The subjective trauma may or may not be associated with an identifiable, objective, traumatic event in the history of the mother–child relationship.

(iii) We all revert to the paranoid–schizoid position under stress in varying degrees. This is true of institutions as well as individuals.[15]

(iv) In a given area of life, the work of transition has just not yet taken place.

In other words, it is stochastically inevitable that at some times in a free universe individuals should operate out of the paranoid–schizoid position.

Key to Klein's thinking is her notion of anxiety. Freud had seen this as stemming from the frustration of libido. For Klein, anxiety is the fear of the aggression by which the primitive self seeks to destroy the bad objects, internal as well as external. In the paranoid–schizoid position, anxiety is a direct apprehension of destructiveness and requires splitting as a defence. In the depressive

position, anxiety has become a positive regard for the well-being of good objects and of other people, as they are threatened by the internal primitive aggression.

This notion of anxiety bears a striking resemblance to the notion that cancer is closely related to the very processes which allow evolution to take place. Anxiety is first feared because it cannot be faced. That is a brute fact. Splitting is a defence which preserves the person in the paranoid–schizoid position, but which can lead to human evil. In the depressive position, anxiety is an integral part of the recognition of the needs of others. We may only love our neighbour as ourselves as people who are anxious for our neighbour because we have contained the aggression against the neighbour characteristic of the depersonalising primitive condition.

Good and evil are close to each other in developmental–evolutionary terms and in psychic experience. Without the potential for evil made actual in primitive experience, there would be no potential for good.

In order to make this account more coherent, it is necessary to identify the mechanism whereby intrapersonal processes manifest themselves in interpersonal relationships.

Klein describes a phenomenon that she called projective identification. This is both a phenomenon of early life and of adult life.[16] In adult life, projective indentification happens when one person is able to make another behave or feel in the way that the first person has an unconscious need to experience. Thus, as a counsellor, I recall one client who appeared to be very attractive sexually. Careful self-monitoring through supervision told me that this was not my problem but projective identification. She related out of deep insecurity through her sexuality rather than her more adult mental equipment. She had unconsciously caused me to experience her as particularly sexually attractive in quite a disturbing fashion, because that was her specific relational mode.

Projective identification is a phenomenon of the paranoid–schizoid position. It demonstrates that those who operate out of that position can be profoundly influential on others. Projective identification of power is the key mechanism behind the Stalin or the Hitler. Yet, Klein believed, it is this very mechanism which aids the movement from the paranoid–schizoid position to the depressive position. The infant discovers that the external objects are real people just because she can cause the (m)other to feel and react in particular ways.

The evil of demagogy is but one step removed from the discovery by the infant that the (m)other exists.

SOME MODIFICATIONS TO THE IDEAS OF MELANIE KLEIN

While the main strategy of this chapter is to focus upon the work of Melanie Klein herself, the envisioning of the significance of her work for our argument can be enhanced by looking briefly at the modifications offered by some of her successors in object relations theory. This must be a very selective examination of a very large body of knowledge, but it will serve to emphasise the point that even those who do not agree with Klein's specific formulation of the developmental process may still contribute to the overall argument of this chapter that human evil is inextricably bound up with the emergence of personality.

Donald Winnicott, a British paediatrician and child psychoanalyst, believed that Klein was in serious error in describing the infant as mainly in touch with the phantasy mother. He argued that the real mother was of far greater importance, not because the infant in the first semester was more able to grasp the existence of the real mother – a fact which, if it were true, would tend to vitiate our argument – but because the basic psychic unit was neither the child nor the mother but rather the infant–mother as a single environment.

The infant is indeed merged in this environment at first, but, as Winnicott points out, so is the mother in what he refers to as 'primary maternal preoccupation'.[17] The mother is then engaged in meeting the infant's need in advance of the infant feeling the need as pain. This is Winnicott's notion of 'good-enough mothering'. The mother need only perform her task with minimal competence so that her work of mothering goes unnoticed by the child.

The infant is not propelled into personal being by either the seeking of discharge of instinctual energy – as in Freud's thought – or the defending against anxiety and the death instinct – Kleinian thought. Rather, the mother or more precisely the mother–infant is a holding unit to contain the emerging self. In this schema, the origin of human evil differs from the Kleinian schema:

> If there is a premature rupture of the holding environment, the infant too early becomes a reactive creature, and develops

> hypertrophied, rigid defence structures. Under such circumstances, the infant must attempt to deal with psychological tasks that he is not yet maturationally equipped to manage.[18]

Yet the outcome is still the same, that in the vicissitudes of the developmental process is to be found the necessary possibility of structures of human evil.

One further concept from Winnicott can assist us in intuiting the intimacy of the processes of early childhood with the emergence of personality for all practitioners of object relations theory.

The notion of potential space is not an easy one to grasp:

> Potential space . . . is the hypothetical area that exists (but cannot exist) between the baby and the object (mother or part of mother) during the phase of the repudiation of the object as not-me, that is, at the end of being merged in with the object.[19]

This potential space is manifest in adult life and in particular in psychotherapy, but also in play, in transitional phenomena, in creativity and cultural experience. The role of potential space in the emergence of both the self and of consciousness is explained concisely by Ogden (1992) in terms of the dialectic within the mother–infant that exists across the potential space:

> The dialectic process is centrally involved in the creation of subjectivity. By subjectivity I am referring to the capacity for degrees of self-awareness. . . . The emergence of the subject in the course of this differentiation makes it possible for a person to wish. The wish to make oneself unaware of an aspect of one's system of meanings sets the stage for the differentiation of conscious and unconscious realms of experience.
>
> Paradoxically, 'I-ness' is made possible by the other. Winnicott . . . describes this as the infant's discovery of himself in what he sees reflected in his mother's eyes. . . . 'The mother creates the infant and the infant creates the mother.'[20]

Donald Winnicott's version of object relations theory offers to the reader and the therapist a more optimistic view of the emergence

of people from the primitive infant–mother unity and yet the linkage of the potential for evil with the necessity of process holds.

The thought of Donald Winnicott and of Ronald Fairbairn combine in Guntrip, whose work we have looked at above, albeit briefly. It is in Guntrip's work that can be found perhaps the clearest description of the link between damage and human evil:

> It is Guntrip's special contribution to emphasise always the two-endedness of relationships. This is not less the case when one end of the relationship is experienced as not there: the experience that 'the world is empty and does not hold anything for me' may be equivalent to 'I am empty and cannot hold anything or anyone securely'. Similarly 'I am empty and will destroy, swallow and overwhelm the world' may be experienced as indistinguishable from 'The world is empty and will overwhelm, destroy and swallow me'.[21]

To the extent that human evil is a breach of relatedness to others, a breach of the second commandment, then Guntrip offers a compact description of the nature of that breach which in Kleinian terms is found largely but not exclusively in the paranoid–schizoid position. This position manifests itself in all of us, even those of us who are strongly disposed to the depressive position.

The disconnectedness from the other can lead, according to Frances Tustin's study of psychogenic autism *Autistic States in Children*, to a level of dysfunctionality which is natural rather than human evil – but again the roots of the two are surprisingly close:

> Disturbances of primary sensuousness bring a feeling of being traumatically disconnected from the sensation-giving mother. . . . This provokes a volcanic uprush of elemental feelings of rage, distress and terror, expressed as spasms of agitation, cramping tantrums, even seeming epileptic fits . . .[22]

This disruption can lead to the hard-shell encapsulation of autism, perhaps the most extreme form of damage to the emerging self-describable in object relations theory terms.

As good and evil are close to each other, so natural and human evil can be seen to share similar psychodynamic roots on some occasions.

MAJOR THEMES FROM THE WORK OF MELANIE KLEIN

The work of Melanie Klein and her successors in object relations theory has already shown that it is feasible to see human evil as a necessary concomitant of the emergence of personality. Yet Klein can also add theological flesh to these philosophical bones.

The Judaeo-Christian tradition is much concerned with the fact that God summons us to a transcendental notion of good which is at one and the same time patently clear and unobtainable. This notion of good I call transcendental because it transcends all specific meanings of good. We may assent to the good even when we are most puzzled as to what it would be to do good under one or another situation. Indeed it is a sign of mature faith to respect the goodness of those with whom one disagrees. The opposite of this is moral tribalism.

Western Christianity has placed considerable emphasis upon the Decalogue and in particular of love of neighbour, both ethically and liturgically. Once the philosophical argument about human evil and personality is granted, then the theological question focuses upon the origins of love.

Klein wrote two major papers, one at the height of her career and one in her mature years shortly before her death, dealing with the origin of love in terms of psychodynamic theory. In 1937, she wrote 'Love, Guilt and Reparation'; exactly twenty years later she published 'Envy and Gratitude'. Both of these papers are rich and complex. They must of necessity be treated here selectively.

'Love, Guilt and Reparation' opens with a recapitulation of Klein's view of the emotional situation of the infant. The mother – or rather the breast – is both loved and hated in that it both satisfies and frustrates the baby. Klein uses the terms love and hate here rather loosely, in that she does not suggest that what the infant in the paranoid–schizoid phase experiences bears much resemblance at all to mature human love or hate. The child feels emotions as if thoughts. This is what Freud called primary thinking. It has a grammar all of its own.

Frustration of primary need leads to fear, anger and hatred. Feeding relieves these. This can be put another way. The deep negative emotions of very early infancy have a high survival value in that they ensure that the infant–mother bipolarity experiences the child's hunger as painfully as possible, thereby raising the impulse to satisfy it. While Klein still looks to the Freudian drives of

sex and hunger, later object relations theory looks to relationship as the primal need. The point is still well made that the very fierceness of the negative emotions has survival value.

Hatred and frustration are experienced as a desire to destroy the loved object. It is this primitive contradiction that leads to the need for splitting in the paranoid–schizoid phase. If the baby did not split good from bad objects then both would be in danger of annihilation. There is no distinction in primary thinking between 'I will destroy the good out there together with the bad if I rage' and 'I will destroy all of me if I rage'. Klein quotes Joan Riviere's research as demonstrating that this destructive desire and fear is behind many psychosomatic symptoms, even relatively common ones such as the loss of breath in anger.[23]

Why are hatred and love so close to each other?

Behind this question is the adult intuition that love and hate are polar opposites. But this intuition is based upon the rationale of secondary thinking processes. It is a characteristically adult construct. It is just not what the baby experiences.

Klein describes the typical mental activity of the very young infant as phantasy. This is both a way of constructing the world which is very different from the logical thought of adulthood – although it may have much in common with the associational system described by cognitive–emotional self-theorists – and what I think of as the infant's best first guess at what is happening.

Primary thinking is evident in later life. A family story will illustrate this well. When my wife was pregnant with our second child, in the early days of morning sickness we had yet to tell our three year old daughter of the fact that she was to have a brother or sister. At one point, she wandered up to me with the comment:

> I think panda has done something funny to Mummy's tummy, but I don't know what!

To Klein, this would have been most revealing. Blaming panda (her much loved toy) for my wife's malaise seems to me to echo in the very mature mind of the toddler (mature relative to the first three months of life) some of the characteristics of paranoid–schizoid thinking. Firstly, Mummy is sick because something terrible has happened – intercourse and the arrival of a sibling. While my daughter did not understand this in an adult sense, Klein would have seen this as evidence that all children have a primitive

awareness of sex. My daughter attributed the blame to panda – a good object and itself a transitional object in the 'losing' of all of Mummy – out of the unconscious fear that the harm had really been done by the loved Daddy. This is healthy splitting, but it also echoes phantasy thinking – a good first guess at reality and thus the construction of an internal reality for the child. This is only an echo. This linguistically sophisticated three-year-old is only briefly committed to primary thinking under emotional pressure. The very young infant has no alternative, day by day. Primary thinking has been characterised by Klein as 'memories in feelings'.[24]

In phantasy thinking, the infant believes that what they desire is already accomplished. In this, it bears some resemblance to extreme psychotic thinking. Therefore, the phantasised attack upon the mother generates unconscious guilt. This pattern of attack and guilt is repeated in the Oedipal phase and in the motif of sibling rivalry. Klein reminds her reader that this unconscious guilt can be manifest in adult behaviour.

> The reason why some people have so strong a need for general praise and approval lies in their need for evidence that they are lovable, worthy of love. This feeling arises from the unconscious fear of being incapable of loving others sufficiently or truly, and particularly of not being able to master aggressive impulses toward others: they dread being a danger to the loved one.[25]

Klein describes the genesis of love as a coping mechanism with which to transcend both the primal aggression and the consequent unconscious guilt. As the infant moves from the paranoid–schizoid position to the depressive position, she desires to make reparation for the harm done in phantasy. Reparation is closely linked with the notion of identification. In this paper, Klein refers briefly to identification as the key to our ability to desire to make reparation. What she does not make clear is the genesis of identification itself. Mature identification, for Klein – the intuition that I and the other are separate but similar in status and needs – is the product of the process of primitive projective identification described earlier in this chapter. Klein describes identification as the ability of the child to become their mother's good object, thus parenting the parent. In being a good parent, the infant can make reparation for the phantasised harm.

At this point, there is insight into the Jamie Bulger case. I asked where evil lies in this. I suggest that the social problem implicit in this case is to do with the victimisation of the culprits. They were demonised by public outcry.

Jamie Bulger was murdered by two boys, who would not normally have been thought capable of such an act until they became adult! Therefore the public needed to scapegoat them. The public's good parent had both been summoned up emotionally by the plight of the murdered toddler and had been left with the unconscious guilt at failure to be a good-enough parent to either victim or perpetrator. Demonising the culprits is one way of making reparation for Jamie's life, but it is also a manifest disowning, splitting off and projecting onto the two other boys of the unconscious fear of failure to protect. The young culprits are irredeemably 'evil' just to the extent that the public fear that there is no room to make reparation for the fact of the public's responsibility for their deed. The initial intuition was correct after all: What sort of society allows this to happen? Young boys should have no capacity to murder. The perversity of the public ostracism of the culprits is bound up with a rule that says 'if we can see no reparation from ourselves then surely they must be incapable of any reparation'.

My thumbnail sketch of the dynamics of this case may fall short of being adequate, but it does show the potency of Kleinian thought for reaching the question of human evil.

Returning to 'Love Guilt and Reparation', the infant's desire to make reparation is the bedrock of more sophisticated love. Thus, love can only come into being because there has been hate and aggression and fear, which in turn stimulates unconscious guilt and then leads onto the desire for reparation which relies upon the process of identification with the mother. Klein summarises her views thus:

> The satisfaction of our self-preservative needs and the gratification of our desire for love are forever linked up with each other, because they are first derived from one and the same source. Security was first of all afforded to us by our mother, who not only stilled the pangs of hunger but also satisfied our emotional needs and relieved anxiety. Security attained by the satisfaction of our essential requirements is therefore linked up with emotional security, and both are all the more needed because they counteract the early fears of losing the loved mother.[26]

The remainder of Klein's 1937 article makes it clear that the genesis of love can fail in some individuals. Where dependence is felt as unbearable, then love can be denied. Where it is unbearable, but there is a strong attachment, then love reverts to greed. Klein was to say more of greed twenty years later.

The strength of this article[27] is that Klein suggests how this basic pattern of the genesis of love and of its potential failure is echoed not just in personal growth or pathology but in social and societal counterparts as well. She attributes to this pattern addiction to profligate sexual behaviour, the destructiveness of unemployment and the beguiling evil of chauvinism and nationalism.

Twenty years later, Melanie Klein wrote 'Envy and Gratitude', a development upon and sustained study of a number of themes in her earlier work. Her thought had, over this period, clarified in two ways which are relevant to this chapter.

Firstly, she had come to see more clearly the necessity of frustration. Frustration is not just about the quality of the mother–child relationship but about the impact of the environment upon that relationship. The child relies not only on the carer but upon the vicissitudes of the surroundings. Klein had begun to lay greater stress upon pre-natal conditions – good and bad – and upon perinatal trauma. In this, the linkages between natural evil – the failure of the environment – and human evil – the failure of personality – begin to emerge.

Secondly, Klein placed an even greater emphasis upon the mother as the primal good object which the infant needed to introject in order to develop ego strength. The process of introjection is crucial to any account of human evil that begins with psychodynamic insights. Personality formation depends upon introjecting good external objects, for this leads to what has been called basic trust, a confidence in the fundamental goodness of the self and of the universe. However, of necessity, not all introjects are good.

Klein considers the relationship between envy, greed and jealousy. Under the influence of paranoid anxieties – but not the later depressive anxieties – envy and greed reinforce each other. Greed is the anxiety-driven craving for security that has apparently been denied. Klein described it memorably as the 'scooping out, sucking dry and devouring the breast'.[28] She then distinguishes between envy and jealousy. The former involves two people or objects; the latter, three. Jealousy wishes to deprive one other of the object which is between them as a bone of contention, but it at least asserts the

worth of the desired object. Jealousy can be healthy in moderation. It is perhaps more characteristic of the depressive position. By contrast, envy actually attacks that which it desires. 'Envy spoils the primal good object'. Gratitude, the feeling that is over against envy, can mature into love, but must itself find realisation if this is going to happen.

In short, Klein sees very clearly that the vicissitudes of the paranoid–schizoid phase can endanger the overcoming of envy in favour of gratitude, that this endangers the primal good object, that introjects then become sour and that adult relationships are consequently damaged.

Klein summarises the linking of the primal good object with adult relationships via the Oedipal phase thus:

> A strong identification with a good mother makes it easier for the child to identify also with the good father and later on with other friendly figures. As a result, his inner world comes to contain predominantly good objects and feelings, and these good objects are felt to respond to the infant's love. All this contributes to a stable personality and makes it possible to extend sympathy and friendly feelings to other people.[29]

CONCLUSION

This consideration of the thought of Melanie Klein and of some of her successors in object relations theory allows us to affirm unequivocally that this model of human evil conforms to the three criteria set out at the end of Chapter 9.

The psychodynamic process or its functional equivalent is necessary to the formation of human personality with a similar degree of certainty as that generated in Chapter 8 by the use of possible worlds parables. This same process leads inextricably to human evil in the required psychological and theological senses. Both of these are the case just because the psychodynamic process is free and stochastic in its operation. Its very nature rescues us from further consideration of compatibilism.

Human evil cannot be considered as a contestible concept the connotations of which are irrelevant – the approach taken with natural evil – because the functional definition of evil requires that we establish a clearer relationship with that which we would label

human evil than is the case with natural evil. Natural evil can be defined as anything which is felt to be destructive of human dignity and being. It is, so to speak, against our humanity. Human evil is contained within our humanity. It is broken humanity. Yet that which is broken is not necessarily evil.

A damaged adult relationship can be seen as either a sickness or an evil. This observation is and should be profoundly disturbing. It brings us back once again to David Parkin's anthropological definition of evil. Whether a personality fault or its social, political or economic manifestation is seen as evil or sickness is a matter of the function of the concepts of evil and sickness. I suggest that the concept of evil in the modern world is evidence of splitting; that of sickness evidence of integration. Splitting can be healthy or vastly dysfunctional, while integration shares in this ambivalence.

The roots of human evil are discernible from the perspective of Klein's thought, but so is the very ambivalence of the function of the concept of evil in human psyche and society.

11

Towards a Theology of Evil: Conclusion and Prospect

TOWARDS A THEOLOGY OF EVIL

We shall not cease from exploration
And the end of our exploring
Will be to arrive where we started
And know the place for the first time.[1]

T. S. Eliot's words fairly summarise the function of a prolegomenon. We have not as yet touched upon the main body of a Christian theology of evil. Rather, we have looked hard at the elements in the reality which we seek to elucidate and/or change, so as to understand those elements better and so as to face what is actual rather than of our own fantasies.

Our instinctive reaction to evil is often that, if we were God, we would have done better. The argument of this prolegomenon is that neither this reaction nor its more strictly intellectual counterparts address the real world, nor do they address the logic of divine action in relation to the created order.

The function of this prolegomenon has been to clarify the point of departure of any theological discourse on evil.

It makes two claims about God *ex hypothesi*: that God should be conceived of in critical-realist terms and that it is logically feasible and theologically appropriate to speak of God's desire to make creatures capable of entering into loving mutuality with him. These are put forward baldly as *a priori* understanding of God and God talk. In this context, they are incontestible. However, by implication, they are also contestible elements of any theology of evil of which this might be a prolegomenon. I would argue that a Christian theology of evil would need to investigate at length the notion of God's loving mutuality with humanity, for it is here that we sense

the intellectually and affectively discordant. In this claim we can focus the questioning, the rage and the need for action. I would argue that a Christian theology of evil should aim to resolve, but not dissolve, this dissonance. This is not achieved by attempting to answer the intellectual problem of evil alone, nor by encouraging the open expression of rage against God, nor by undue activism. All have their place within a larger context. The Christian theologian is engaged in the imaginative process of rendering reality intelligible, in terms of the resources of faith.

Christian tradition has seen God as both the maker and preserver of all that is; as both the transcendent creator and immanent redeemer. A Christian theology of evil will need to work with the tension between its theological adherence to the notion of a loving God and its steady and unremitting exploration of the world in which we live, experience, suffer and rejoice. This humanistic commitment to the exploration of people-in-context will be multifaceted. Two aspects will be crucial – an understanding of what it is that we feel to be dysfunctional in creation and an understanding of what it is in creation which limits God.

This prolegomenon specifically addresses the latter of these.

I would argue that to experience living with divine limitation is essential to human spiritual maturity. Much, but not all,[2] of Christian thinking has majored upon fatherhood images for God. In relation to our own parents, we go through at least three phases. The child is besotted with the all-powerful parent. The teenager, although at heart a conformist, experiments in rebellion against the father held in occasional contempt for his fallibility. The adult recognises the same limitations to be operative in her own life as in her father's. Maturity brings a renewal of relationship. Much modern theodicy is in adolescent trauma. To remain there is spiritually unhealthy.

This summary prospect of at least one family of Christian theologies of evil enables us to appreciate the general function of this prolegomenon. We can now grasp more firmly what has been achieved and what agenda this very achievement has thrown up.

ACHIEVEMENT

The free-will defence, as put forward classically by Alvin Plantinga, has the virtue of being holistic. To the extent that his defence works,

it at least deals with all aspects of evil. This contrasts with those theories of evil which leave the theodicist to make subsequent justification of each example of evil one by one, to show how they conform to a particular pattern. However, beyond this notable virtue, Plantinga's approach has a number of weaknesses: it renders little or no account of human freedom, although this is allegedly the very reason for which the cost of evil is paid; it is vulnerable *prima facie* to the assaults of compatibilists; it renders a dubious account of natural evil; it uses uncritically the language of possible worlds semantics and so makes no distinction between the divine act of creation and the notion of instantiating a possible world.

Far from being four separate criticisms, these have common ground. Each criticism reflects an aspect of Plantinga's failure to recognise that, at least for the monist, all human experience and, hence, all human possibility is inextricably interwoven with the fabric of the material, created order. Both the created order and human experience are complex; *a fortiori* their relationship is far from simple. Free-will is neither a sufficient account of human freedom, nor is indeterminate free-will a convincing account of human action; Plantinga fails to relate his concept of free-will to the physical substratum in which it is rooted. Plantinga is susceptible to compatibilism because he relies only upon narrowly logical counter-arguments; he ignores the intricacies of any claim that creation is such that God could have done otherwise than he did. Plantinga begins with human evil and, hence, does no justice to natural evil, because he fails to see that evil is rooted in the fabric of the created order. Whether it is cause or symptom of this unrootedness that Plantinga's language of the instantiation of possible worlds is naïve, I will leave others to judge.

This critique of Plantinga's free-will defence left the following tasks to be accomplished: that human free-will should be defined so as to relate it to the structures of the material world, that these same structures be shown to be sources of evil and that whatever is shown to be true of the world as we know it should be shown to be necessarily true.

These tasks each rely upon detailed reference to issues in philosophy and science. It was most desirable to use non-controversial material where possible and to refer to speculative material such that it never formed an indispensible link in a concatenation of arguments, but rather a non-essential piece of supporting evidence to a more general argument.

It has not been possible to elucidate human freedom definitively, but only to offer a working model. This centred upon the four categories of materiality, mutuality, temporality and communality. It was demonstrated that this model would be equally available to the Thorpean libertarian and to the soft determinist. Whilst stated relatively simply, this model can be expanded to do justice to the complexity of our experience of what it is to be free.

The major challenge was to relate this working model of human freedom to a detailed description of the material order as we are coming to understand it. Dr Polkinghorne, in personal correspondence, has urged the value of generalised arguments. However, the force of my style of argument by detailed example is that the sheer complexity of interconnectedness is more fully illustrated. If any particular example were to prove suspect on technical grounds, then the whole does not fail, in that other parallel examples can be developed. Without such detailed exemplification, the debate as to the necessity of these relationships would have been the more difficult, in that the invitation to falsify the claim to necessity involves considering possible worlds parables which are themselves detailed descriptions of *B*-possibility.

Human freedom is rooted in the human brain. There is no one-to-one correspondence between freedom and particular structures of the brain. Rather, I developed descriptions of structure types likely to correspond with freedom and then showed how such structure types are exemplified in the brain. The brain was then set within its evolutionary context, to demonstrate two claims. Firstly, the structures allegedly necessary to human freedom require evolution (or a functionally equivalent process) so that they are themselves freed from the hard determinism of divine fiat. Secondly, quite long chains of events – from the very early universe through to plate tectonics and the development of the uncommitted cortex – were shown to be important. The very length of these chains are sources of discomfort in detailed, scientific thought. They feel to be unduly speculative. The point at stake is that they form part of a *philosophical* argument. The very length of the chain is of the substance of the argument, for it is equated with the complexity of interdependence of human freedom with its substratum. If one particular chain fails, then others can be developed.

All that has been described to date was contingent. Was it also necessary? Chapter 8 concluded felicitously that, although there are no *a priori* arguments for necessity easily available, at least one *a*

posteriori argument would show that it was reasonable to believe in the necessity of what had been described, that it was very difficult to falsify the claim to necessity, that the process of induction always leaves the possibility that someone would construct a possible worlds parable which would falsify the proposition and that the argument for necessity had a trustworthy parallel in the philosophy of mathematics rendering the likelihood of its holding so much the greater.

At first sight, the argument of this book is applicable only to natural evil, because human evil requires a way of dealing with the question of the nature of human action. The work of Melanie Klein and others from within the psychodynamic tradition yielded an approach to human evil. This paralleled the natural evil argument. In exactly the same way that natural evil is stochastically inevitable in the face of the evolution of the universe, so human evil is an unavoidable by-product of the evolution of human personality. This conclusion can be reached without committing oneself either to soft determinism or to some form of libertarian free-will.

Overall, this work illustrates the possibility of accumulating a number of mutually supporting arguments from several disciplines, without being unduly vulnerable to a reliance upon hotly disputed, specialist material for the success of whole pursuit.

AGENDA

There are a number of specific issues which arise from this study. A brief acknowledgement of these issues adds to our understanding of the theological context of the book. The following are of particular importance, but the list is by no means exhaustive.

1. God is limited as to what he may possibly do. The limitation described in this book must be sufficient to render an intelligible account of evil. We may not presume from this that the limitation is absolute, that God is merely the prime mover, for such a view might be described as practical atheism. An account of divine action is required that is both consonant with divine limitation and open to divine, self-giving presence in the world.[3]

2. Brief reference is made in Chapter 4 to our source of freedom in communality. Justice has not been done to this, under pressure of space. Most theological and secular thinking has rejected mind–body dualism. I would argue that there is also a danger of mind–culture dualism.[4] To the extent that the self emerges from culture and language, then evil is bound up with that which is dysfunctional in this arena of human, corporate experience.

3. The description of human evil derived from the work of Melanie Klein and from object relations theory is committed neither to soft determinism nor to Thorpean indeterminism. While Chapters 9 and 10 suggest that the bulk of human evil can be seen in Kleinian terms, there is still no resolution of the question of the inherently evil decision. There is a pre-critical abhorrence in many people of attributing all human evil to alien causation. Are not people sometimes just evil in themselves without reason or excuse? This question deserves a fuller answer than it has received in this work. The question is not just a piece of philosophy or even jurisprudence. It leads to a consideration of the theology of divine judgement. On what grounds and with what sort of justice are people judged by God if human evil is circumstantial? If human evil is intrinsic to human decision making, a matter of free-will and human responsibility, what philosophical account can be given of this process to undergird the theological consideration of judgement?

CONCLUSION

It is rational to believe that the necessaria of human freedom are also sufficient for evil, both natural and human. This work has been a wholly successful defence. However, it has gone beyond the demands of a defence to show that this claim about the necessity of the link between human freedom and evil is probably true. Yet, since the truth of this proposition is demonstrated inductively, it is always open to refutation, however problematical such a refutation might be.

Such a statement about the actual world and divine limitation is part of the theological task of a journey towards the resolving of dissonance, towards

> A condition of complete simplicity
> (Costing not less than everything)
> And all shall be well and
> All manner of things shall be well
> When the tongues of flame are in-folded
> Into the crowned knot of fire
> And the fire and the rose are one.[5]

Appendix

1 SYMBOLISATION OF ARGUMENTS

A A non-finite set of propositions $a_1 \ldots a_n$ which describe the material world as we experience it objectively.
A' Subset of A, such that $(A' \supset F)$. It is composed of an infinite set of propositions $a'_1 \ldots a'_n$.
B $\Box A'$.
F Humans are free in a non-trivial way in a sense compatible with the working definition of freedom in Chapter 4.
G God exists (in the sense defined in Chapter 1).
H Human evil exists.
M Moral evil exists.
N Natural evil exists.

For the distinction between moral evil and human evil, see Chapters 4 and 9.

The following conventional operators are used.

$\forall$ and $\exists$	The universal and existential quantifiers.
$\sim$	Negation. (Note that in the scientific material tilde means 'of the order of'.)
$\Diamond$	Possibility.
$\Box$	Necessity.
∇	Contingency.
$\wedge$ and $\vee$	Conjunction and disjunction.
$\supset$ and $\equiv$	Material conditionality and biconditionality.
$\rightarrow$ and $\leftrightarrow$	Strict implication and identity.
Σ	Summation.

The lines of symbolic logic in this book read as follows:

Expression (1): Plantinga's Defence

$$(\Diamond(P \wedge R) \wedge ((P \wedge R) \rightarrow Q) \rightarrow \Diamond(P \wedge Q)$$

If it is possible that both P and R obtain and P and R together entail Q, then it is possible that P and Q both obtain.

This is a general argument form such that when two propositions, P and Q, are alleged to be logically contradictory, they may be shown to be compatible by the specifying of a proposition R, such that R is compossible with P and that P and R together entail Q. I term R the compossibility clause. In Plantinga's specific argument, the substitution instances of P and Q are, respectively, the major and minor premisses of the Humean syllogism.

P God exists and is omniscient, omnipotent and wholly good.
Q There is evil.

Expressions (2)–(6)

$$\Box(G \supset F) \quad (2)$$
$$\Box(F \supset A) \quad (3)$$
$$\Box(A \supset \Sigma(\Box a')) \quad (4)$$
$$\underline{\Box(\Sigma(\Box a') \supset \Diamond N)} \quad (5)$$
$$\therefore \Box(G \supset \Diamond N) \quad (6)$$

The argument embodied in expressions (2)–(6) is in the form of a syllogism, where each expression is necessary, thus rendering a conclusion that is necessary. The horseshoe ($\supset$) indicates material implication. This is a very specific logical concept. It is often rendered in English in the form 'if x then y'. Yet, its meaning is more precise and non-committal than this rendering suggests. Material implication means that it is a matter of fact that 'if x then y'. It does not imply causal connections. x does not necessarily cause y. They just happen together. Causation would be indicated by strict implication ($\rightarrow$). I have used ($\supset$) at all points except where strict implication is meant over material implication.

It might be argued that $\Box(x \supset y)$ is reducible to $(x \rightarrow y)$. However, the notation used above keeps separate the weak notion of material implication from that of necessity. This separation is crucial for the examination of the modality of the syllogism in Chapter 8.

The argument reads 'it is necessarily the fact that if God exists then there is human freedom; similarly, human freedom materially implies A – the sum of all material possibilities in the real world; this necessarily includes $\Sigma\Box a'$ – the sum of all those individual substituents necessary to freedom; these materially imply the possibility of natural evil, in the sense that natural evil is virtually inescapable in some form or other'. This then gives the conclusion

that it is necessarily the case that the existence of God materially implies the possibility of natural evil.

Expression (7)

$$\Box(F \supset \Diamond M) \tag{7}$$

It is necessarily the case that (human) freedom materially implies the possibility of moral evil.

Expressions (8)–(10)

$$[F \supset \Sigma a'] \wedge [\Sigma a' \supset \Diamond N] \tag{8}$$
$$P(N) = [0 < P(\sim N) < P(N) < 1] \tag{9}$$
$$[(N \supset \Diamond M) \vee (F \supset \Diamond M)] \vee [(N \supset \Diamond M) \wedge (F \supset \Diamond M)] \tag{10}$$

This argument expresses the difficult notion that natural evil is both possible but is also very likely to be unavoidable on stochastic grounds. Expression (8) reads 'freedom materially implies its own substituents, which in turn imply the possibility of natural evil'. Expression (9) elaborates this by arguing that the probability of natural evil – *P(N)* – is such that *P(N)* is greater than *P(~N)* but that neither *N* nor *~N* is certain. Expression (10) states that the cause of moral evil can be either natural evil or (after Plantinga) human freedom or both.

Expressions (11)–(14) and (15)–(18)

$$G \supset F \tag{11}$$
$$F \supset \Sigma a' \tag{12}$$
$$\underline{\Sigma a' \supset \Diamond N} \tag{13}$$
$$\therefore G \supset \Diamond N \tag{14}$$

$$\Box(G \supset F) \tag{15}$$
$$(F \supset \Sigma a') \tag{16}$$
$$\underline{\Box(\Sigma a' \supset \Diamond N)} \tag{17}$$
$$\therefore G \supset \Diamond N \tag{18}$$

Both of these arguments will be recognised as slightly abbreviated forms of the argument in expressions (2)–(6). $F \supset \Sigma a'$, in expression (12), is a conflation of expressions (3) and (4).

Expressions (15) and (17) have been modalised via the argument in the main body of the text; the whole purpose of Chapter 8 is to discuss the modality of expression (16) so as to establish whether the syllogism's conclusion can be modalised as necessary.

Expressions (19) and (20)

$$\exists(\Diamond\Diamond S)\ (\Diamond\Diamond S \supset \sim\Diamond S) \quad (19)$$
$$(\Diamond\Diamond S \supset \Diamond S) \text{ (the principle of reduction)} \quad (20)$$

Expression (20) is an axiom of Lewis' system S5. It reads that that which is possibly possible is therefore possible. Expression (19) contradicts this axiom by, in effect, pointing out that there are different meanings of 'possible' to be taken into account – broadly logical possibility (after Plantinga) and what I have called material possibility. The line reads that there is at least one proposition in which that which is possibly possible is in fact not possible. In this, a double diamond stands for a broadly logical possibility while a diamond stands for material possibility.

Expressions (21)–(23)

$$\Box((\Sigma a') \supset N) \quad (21)$$
$$((\Sigma a') \supset N) \wedge ((\Sigma a') \supset H) \quad (22)$$
$$\Box((\Sigma a' \supset H) \quad (23)$$

Expression (21) reads 'it is necessarily the case that natural evil is entailed by its physical substituents'. Expression (22) argues that natural and human evil are both entailed by the same set of substituents. Expression (23) exactly parallels expression (21) in asserting that it is necessarily the case that human evil is entailed by its material substituents.

2 PLANTINGA'S DEFINITION OF FREEDOM AS A TRUTH CLAIM

While it would have been an interruption of the argument of Chapter 3, it is of considerable interest, to examine Plantinga's definition of freedom, so as to demonstrate that while technically the notion

of a defence does not require that the compossibility clause be true, there is nevertheless a broad requirement placed upon the theologian, if not upon the philosopher, that compossibility clauses should be probably true.

Plantinga typically defines what he means by being free in the following.

> According to the Free Will Defender, God thought it good to create free persons. And a person is free with respect to and action *A* at a time *t* only if no causal laws and antecedent conditions determine either that he performs *A* or that he refrains from so doing. This is not a comment upon the ordinary use of the word 'free'; that use may or may not coincide with the Free Will Defender's. What God thought good, on this view, was the existence of creatures whose activity is not causally determined – who, like he himself, are centres of creative activity. (Plantinga (1974) Chapter 9; original italics).

This paragraph is, surprisingly, among the longest sustained discussions on the nature of freedom which Plantinga has formulated in his development of the FWD. It is a curious offering. In *Alvin Plantinga: Profiles 5*, Plantinga accepts that his stipulative use of the word free and his attempted distinction between freedom in the above sense and unfetteredness are untenable, but, to my knowledge, has not reworked the question. The result of this hiatus is that he works with a definition of evil which, although logically adequate to his particular argument, is neither free of logical problems nor safe from theological objections.

His definition contains four separable elements.

(a) A free person's freedom is about their ability to perform an act or refrain from so doing. Freedom is freedom to decide.
(b) This is not the ordinary use of the word 'free'.
(c) Free action is causally indeterminate. Plantinga is thus committed to the truth of incompatibilism. He does not say whether all free action is always indeterminate.
(d) Indeterminate free-will is equated with creativity. This is far from obviously true in itself. However, there is also implicit within this assumption the belief that divine creativity and human creativity are alike and, thus, that to be creative in this sense is part of what it is to be human.

Plantinga's definition of freedom has to perform two different functions. Any stipulative definition functions within an argument hypothetically. That is to say, Plantinga's argument may read 'If this is what freedom is, then the consequences of this sort of freedom are thus . . .'. Let us call this the internal relationship of the definition to its argument. The sort of argument known as a defence is exclusively about internal coherence. The compossibility clause functions hypothetically; it need do no other. Of Plantinga's definition of freedom, its internal adequacy depends mainly upon the falsity of compatibilist arguments.

However, definitions also possess an external relationship with their arguments. Internal relationship is a logical quality. In the argument, $p \supset q$, where p is a stipulated term, the internal relationship of p to its argument is that its stipulated meaning allows for the validity of the argument itself – in this case, the validity of the material implication. It is of course the case that the relationship of material implication implies neither the truth nor the falsity of the terms bound within the argument. Material implication is the statement of a hypothesis. Therefore, it is often read (rather slackly) as 'if p then q'. We must not deny that Plantinga's defence is bound to concern itself with more than this internal relationship. By contrast, external relationships concern the truth value of the term stipulated. If all that we know is that the argument $p \supset q$ is valid, then we know only the truth of an abstract, logical relationship. If we know that p, as defined, is never true, then the material implication tells us nothing more about the concrete world. If it is possible, probable or certain that p is true, then we have new knowledge about the status of the term q. In short, while the philosopher has an inalienable right to discuss the validity of an argument *in vacuo*, the theologian, in using an argument, might be interpreted as adding meaning to the world as we know it. The theologian who argues $p \supset q$ might be heard to be making an implicit assertion of the possible, probable or certain truth of p.

Let us turn our attention again to the four elements, *a* to *d* above, of Plantinga's definition of freedom. Plantinga, *qua* defender, is not committed to the truth of this definition. The only element of the argument $F \supset \Diamond M$ that is vulnerable to objection is its internal, logical coherence. The compatibilist objection – namely, that freedom and divine intervention are logically compatible to such a degree that the entailment $F \supset \Diamond M$ is no longer valid – does threaten this definition of freedom as an element within a defence. However,

all other assumptions are neutral to the function of *F* within the defence. Plantinga, *qua* theologian, does appear to be implying four different truth claims about the nature of the world in which we live.

(i) He may be heard to imply that 'freedom to decide' is in fact an adequate, theological definition of human freedom, that this is what mainly constitutes human freedom in the real world. His rejoinder that his definition of freedom is merely a hypothesis for the sake of his defence is curious, to say the least, for within the same definition he includes by implication or explicitly three further truth claims about the nature of reality, none of which serve his defence and all of which have considerable philosophical and theological implications about the nature of reality.

(ii) He claims explicitly that free-will is indeterminate. This claim is not only highly contentious (the free-will debate will be examined at a later point below) but also ambiguous. The assertion of the indeterminacy of free-will can be interpreted as epistemological, in which case it means that reality is best viewed from the prior assumption that human decisions are not at all determined. Otherwise, it must be an empirical claim about the mode of function of the human mind and brain. Plantinga neither clarifies which of these two he is asserting, nor does he defend either. Plantinga's assertion of free-will looks to be an empirical claim, since he relates it to human creativity, which is also an empirical truth claim rather than an epistemological category.

(iii) He implies that creativity is based upon indeterminate free-will and that this is true both for God and for humanity and, thus, that divine and human creativity are similar. This complex of claims is far from obviously true. However, it also makes clear that Plantinga values the notion of indeterminate free-will as a theological truth claim about human creativity.

(iv) Plantinga implicitly defends on theological grounds his emphasis on free-will, not as good in itself, but rather as the ontological basis of both human and divine creativity. In this, Plantinga is aware that free-will, by itself, is not an adequate definition of what it is to be human. Theologically, he is beginning to define freedom in terms of

conformity to the pattern of divine creativity. Creation is an activity which God and humanity share together; this sharing is part of what it is to be human.

3 MUTUALITY

Human mutuality can be described in several different languages. A subjective account is not the same as its religious-language counterpart. Divine–human mutuality can also be described objectively, in terms of the conditions required for it to exist. I intend to focus upon three. Materiality has been discussed in the text as that which allows sufficient ontological distance between the omnipotent and the finite. To this property, can be added the need for freedom of decision and the need for process. Both of these are extensions of the concept of materiality.

Most human beings live as though they have free-will – even behaviourists. The philosophical debate examined in Chapter 4 is about the bases of free-will; on the one hand, some like Plantinga argue (or presume) that free-will must be indeterminate, while others, although granting the practical reality of the experience of free-will, see it as a wholly determined process. At this point, we need do no other than take the common or garden and naïve view of free-will as a necessary constituent of mutuality.

If materiality is the necessary ontological distance between God and us, in the most general terms, then free-will is a specific form of materiality. Presuming that the mind–brain problem has a monistic solution and that dualist interactionism does not survive analysis in terms of the concept of materiality, then free-will is the subjective experience of the ontological distance between divine omnipotence and the subordinately independent activity of the human brain. Free-will is the subjective experience of being our own persons who may be true to ourselves in all our relationships, including that with God.

Mutuality presupposes consent and that, in turn, requires free-will. Free-will, consent and mutuality are key notions in jurisprudence. Each is a prerequisite of certain sorts of contract. Contracts are mutual; each party must provide a benefit and be capable of fidelity to an agreement. Contracts require consent. Thus, a contract is invalid if consent was lacking on the part of one of its parties. Neither party may be physically compelled to subscribe a valid

contract. Free-will differs from consent in that, where consent is lacking, it is absent through an external condition – force or legal minority – while the actual desire of the party should, *prima facie*, be taken seriously. Free-will is lacking where in some way that very desire is defective or suspect.

Under this legal analogy, we can see that free-will, consent and mutuality are regulative notions. People use them as criteria by which to test whether a social restriction is compatible with individual human dignity. Totalitarianism may be described as such a system which displaces this regulative process by another whose criteria are collectivist or oligarchist.

Consent and free-will are constituents of mutuality. The analogy of marriage illustrates this. In the Western model of marriage, each party enters into a relationship of mutuality. Non-mutual arrangements would be nearer to slavery. Consent is legally required. Free-will might be roughly equated with the emotion of love. This last point simply does not apply in the Eastern pattern of the arranged marriage. Free-will is better seen as a cultural acceptance of the social convention even if the marriage itself is not sought. The range of meaning attaching to free-will as a constitutive element of mutuality is wide ranging. This is important when we come to look at the types of free-will which can contribute to mutuality.

Free-will, whatever its precise connotation, is a link concept between materiality and mutuality. Materiality is ontological distance; mutuality requires such distance in the dynamics of human responsibility and dignity before God. Free-will, together with a monistic approach to the mind–brain, implies that ontological distance contributing to mutuality will be expressed in the structures of the human brain. We are capable of mutuality because our brains have certain qualities which make this possible. Our analysis of the free-will debate set some parameters for judging the characteristics of the human brain which contribute to free-will and, thus, mutuality; these parameters can then be set against our knowledge of brain physiology.

We turn now to the relationship between mutuality and process. As a matter of fact, mutuality exists only because the participants have travelled the road of a process. What exactly that process is can be described with more or less sophistication. Let us, for the sake of this argument, call it learning. Mutuality is always experimental; no person has fulfilled their potential for mutuality. Yet, it is a potential which is considerably nearer to maturity in adults.

The stages of the parent–child relationship are the story of the learning of mutuality. The bonding process immediately after birth is the beginning, within the infant, to recognise its own personal existence and identity. If this process of bonding is seriously inhibited, then the personality can suffer damage. In earlier childhood, the child shares in the parental identity; in the later stages, the child begins to introject parental values and so internalise that shared identity. The time around puberty and shortly before is that time when sexual identity is more firmly established by experimenting with emotional attachment to parents both of the same sex and the opposite. This is a complicated process, as it involves both sexual attraction/competition and role identification. The later adolescent stage involves a questioning or rejection of some parental values and a compensating strengthening of peer-group identity. Only in the twenties can the adult return to a symmetrical relationship with its parent.

This brief description is unavoidably stereotypical and imprecise. However, it does outline the dependence of our ability to enter into mutuality upon the process of maturation. Much personal counselling is based upon the correction of past or current maturation-learning deficiencies.

Is the process dependence of mutuality logically necessary? It is. So far, I have merely argued that process happens to be our road to mutuality. What is necessary about this? Need we suspect that process will have a similar function in every possible world in which there is human mutuality? In those possible worlds in which there is both mutuality and an omnipotent God, there will be an expression of materiality. The ontological distance between creator and creature is, like freedom itself, something which may arise but which may not be directly ordained by God. It too is subject to the logical restrictions of counter-factuals of freedom. In other words, in the same way that omnipotence may say, 'be', but not 'be free thuswise', so it may say 'be thus' but not 'be thus freely in relationship'. When the latter is the divine aim, the means to that end must be built into the fabric of being, together with all their attendant risks. Process is the generalised name of just this means. A creature capable of mutuality is inextricably bound up in process, is radically temporal. The evolutionary processes which generate brain structure and, hence, the capacity for freedom are necessary in that they are specifics of materiality, which is itself necessary. Learning or maturation is simply part of the same evolutionary process of the human

brain realising its own potential. Maturation bears to brain structure the same logical relationship that mutuality bears to materiality.

4 TYPES OF NON-DETERMINACY IN A NON-DETERMINATE FINITE AUTOMATON

In Chapter 6, use was made of Nelson's (1982) concept of the non-determinate finite automaton (NFA). I suggested that the neural net should be seen as an NFA. It is important to see that the number of mechanisms which might enable a neural net to function polygenically are large. None of these rely upon Plantinga's (I believe, meaningless) notion of indeterminacy. Only the first relies upon quantum mechanical effects. The following are of particular interest.

(i) Radical indeterminacy. This is best represented by the Heisenberg uncertainty principle, which states that certain microscopic processes are simply indeterminate. Some of these quantum mechanical effects have repercussions macroscopically. This is the only variety of 'non-determinacy' which is certainly not a determined process in any sense of the word. The remaining species represent types of non-determinacy in which the constituent processes may themselves be rigidly determined.

(ii) Logical indeterminacy. This is a category of indeterminacy described by Donald Mackay (1960). He claims – rightly, if ineffectively in respect of his claims about free-will – that a brain cannot know its own brain state, since the act of knowing alters that which is known. This paradox results from feedback. The knower is changed in the knowing, such that that which is to be known – the state of the knower – is changed in the very act of knowing. Mackay's logical indeterminacy is a special case of the combining of a feedback loop with a switch which contains an element of randomness. The randomness of the switch (albeit marginal randomness) means that the operation of the feedback loop is not strictly determined and, therefore, the condition of the whole circuit is logically indeterminate. A neural net with synaptic switches is precisely such a circuit.

(iii) Coincidental indeterminacy. This is simply a matter of two

causal processes intersecting, such that prior to their intersection there was no causal connection between the two processes. Each process may be strictly determined. Metaphysically, therefore, their intersection is determined by the coincidence of their initial but causally non-related states. In practice, their intersection is coincidental, not determined by a shared initial state. In complex enough combinations of intersections, law-like qualities will emerge, so that there will develop macroscopically a statistical likelihood of intersection. The classical example of this is the behaviour of particles in liquid in Brownian motion.

(iv) Analogue indeterminacy. A neural net is an analogue device because of the indeterminate threshold of firing of its neurons. All analogue devices share a macroscopic, practical indeterminacy of imprecision.

(v) Chaotic indeterminacy. Chaos theory is a recent development in scientific thought. It deals in large-scale, far-from-equilibrium systems, which reveal novelty as they evolve. The weather is a fine, practical example. The mathematical phenomenon of fractals is important. It is unclear whether these systems are undetermined in a full-blooded, ontological sense.

This list is not complete. It aims to show that the conditions allowing a finite automaton to be polygenic are legion and complex.

5 THE EVOLUTION OF SICKLE-CELL ANAEMIA

Sickle-cell anaemia is a disease which characteristically affects Africans. It is a fine example of the delicate balance between good and evil in the natural world.

In the acute form of sickle-cell anaemia, its vicious symptoms result from a single substitution in the beta chain of the haemoglobin. At position six, glutamic acid has been replaced by valine; the other 145 acids in the chain are correct, as is the rest of the molecule. However, there is more to this small error than meets the eye. Sickle-cell anaemia is predominant in many tropical populations, while largely absent in temperate climate populations. Epidemiology shows that the disease correlates highly with the incidence of falciparum malaria! In other words, the resistence of sickle cells to

malarial infection means that they are selected for in terms of one quality, whereas they might have been selected against in terms of another. It is then a matter of fact that at a particular point in human evolution and in a particular environment, nature, *pour ainsi dire,* thought malaria to be a higher risk than sickle cell anaemia. It is difficult to judge how and why we should consider sickle-cell anaemia to be a natural evil since it has inherent benefits, on the one hand; on the other hand, no sufferer from the disease would baulk at describing it as evil indeed.

6 THE EXISTENCE OF GOD AND NECESSITY *DE RE*

Necessity *de re* is sometimes attributed to God. The thinking is as follows: 'God, if he exists, exists necessarily' is itself necessarily true. The basic meaning of this statement seems to be theologically clear enough: it is inappropriate to talk of God as an object amongst other objects. God does not exist in every possible world; 'God exists' is not necessarily true *de dicto.* Therefore, the sense in which God necessarily exists looks beguilingly like necessity *de re.* There is here a double confusion. Firstly, there is simply the error of regarding the inappropriateness of the claim 'God is contingent' in theological discourse as identical with a claim about necessity in logical discourse, Secondly, there is the error of failing to see the *de dicto* meaning of the proposition: God, if he exists, exists necessarily. This can easily be reduced to a claim *de dicto.* Given the appropriate theological reference of the word 'God', the proposition 'God exists' is either true or false, but clearly we do not know which. This is exactly the situation with some mathematical theorums. Fermat's last theorum or Goldbach's conjecture are either true or false. We do not know which and may never know, if a proof does not exist for either. However, the truth or falsity of each exists necessarily and that necessity is *de dicto.* Thus, the proposition 'God, if he exists, exists necessarily' may appear on formal grounds to express necessity *de re,* but in fact makes a claim about the necessity *de dicto* of the truth or falsity of an existential proposition, whose truth status is unknown and possibly unknowable.

Notes

Chapter 1: Introduction

1. *Paradise Lost*, I: 24–6.
2. Hume (1935) Part X; as quoted in Brody (1974) p. 156.
3. Surin (1986) pp. 96–105 and especially p. 97, from which comes his quotation from *The Brothers Karamazov* (London: Penguin, 1958) pp. 286–7.
4. Polkinghorne (1989) p. 66.
5. Hick (1988) p. 8 (in prepublication typescript).

Chapter 2: Redefining the Problem of Evil

1. Becker (1968) and Becker (1975) are two classic examples of the impact of the problem of evil upon the atheist.
2. Hooker (1989) Ch. 3.
3. The distinction between natural and human evil presumes little about the specific referenda of evil. Human evil, by my definition, differs from natural evil if and only if human deciding is ontologically sufficiently distinct from all other natural processes. If human deciding and human responsibility are not sufficiently distinct, then all evil is natural evil. The distinction between natural and human evil is a hypothesis rather than an assertion.
4. Parkin (1985) p. 23.
5. Surin (1986) p. 151, quoting Irving Greenberg.
6. Hodgson (1968) p. 23.
7. Thompson (1976) pp. 76–7.
8. Surin (1986) p. 13.
9. Brown (1977) p. 114, quoting Somerset Maughan's *The Summing Up*.
10. Hume (1935) X as reprinted in Pike (1964) p. 23.
11. F. Dostoevsky, *The Brothers Karamazov* as reprinted in Pike (1964) p. 16.
12. A detailed consideration of this stance is made in Chapter 3.
13. Ahern (1971) p. 33.
14. In loc. cit. The scripture reference is to I Samuel 2 v. 6.
15. Brown (1977) p. 94.
16. Ibid., p. 100.
17. Kropf (1984) p. 27.

Chapter 3: Plantinga's Free-will Defence: Critique and Proposal

1. The key text is his article, Plantinga (1979). This is further developed in Tomberlin (1985), in which Plantinga is in debate with Robert Adams. Finally, the probabilistic argument is dealt with fully in Plantinga (1988).
2. Tomberlin (1985) pp. 225–55. These three species approximate to three questions: (i) Why is there any evil at all?, (ii) Why is there as much evil as there is in the real world? and (iii) Does the amount of evil in the real world lessen the probability of the existence of God? Only the last of these is necessarily a reply to the atheologian; Plantinga sees the first two as being within this debate as well.
3. Tomberlin (1985) pp. 41–4 constitutes Plantinga's reply to this criticism.
4. Ward (1982) p. 3.
5. Flew (1955) p. 164.
6. Tomberlin (1985) p. 42.
7. Tomberlin (1985) p. 38.
8. Plantinga (1977) p. 38.
9. This is in fact modal. It reads

$$\sim \Diamond (\alpha \wedge \sim (\text{evil}))$$

10. As quoted by Plantinga (1974) pp. 167–70.
11. D. Lewis (1973), Ch. 1, specifies conditions for counter-factuals to be true. They rely upon the dubious notion of a 'most similar possible world'. See also Plantinga (1974) p. 175.
12. Ackerman describes a problem in mathematics usually called the Türing machine halting problem. A Türing machine is a notional computer which reads tapes displaying a finite number of symbols from a finite alphabet. The machine can either move left or right or change the symbol. A solution is designated to be the event wherein the machine halts. The procedure, we will note, is wholly determined. It is a simple mechanism. There is no question that the final state of the machine is contained within its initial state. However, mathematicians have demonstrated that the final state cannot be predicted from the initial state. It is not simply a matter of complexity. There is a radical incoherence to the notion that the final state can be predicted. Patterns of recurrence are not predictable within the alphabetic sequence. If Ackerman's source is right, then, Ackerman points out, the Türing machine halting problem is one manageable example of a case where God could not have middle knowledge.
13. Plantinga (1974) p. 169. The italics are Plantinga's throughout.
14. I will argue this point in considerably greater detail in Chapter 7.
15. Plantinga (1974) pp. 170–1.
16. Tomberlin (1985) pp. 371–2.
17. A good example of an attempted account of such a processing is W. Thorp's notion of the hegemony of mind. See Thorp (1980).
18. Plantinga (1974) p. 180.

Chapter 4: Human Freedom and Natural Evil

1. This is in fact a major problem which will not be resolved in this book, but will be referred to again in the final chapter. Much Judaeo-Christian theology has gone to pains to point out that God both creates and sustains. If this is the case, there needs to be a resolution of the *prima facie* contradiction between the freedom and the God dependence of the created order.
2. See in particular Salmon (1984) and Otte (1982).
3. See Hull (1985) p. 60. He describes the impact of modernity in Bali as the movement from corporate ritual to individual disputation and interpretation. A fuller account of this process can be found in Bateson (1973) pp. 80–100.
4. The second collect at matins.
5. Polanyi (1958) pp. 404–5.
6. I use the term 'ontological distance' as a conscious parallel with John Hick's term 'epistemic distance' – Hick (1978) p. 317.
7. Brockelman (1985) p. 11. Original italics.
8. E. Husserl, quoted by Brockelman, op. cit., p. 46. The source of the quotation is unacknowledged by Brockelman.
9. Brockelman (1985) p. 23, quoting J. MacMurray, *Persons in Relation* (New York and London, 1961) p. 221.
10. Op. cit., p. 24. Original italics.
11. Merleau-Ponty (1962) p. 426, quoted in Brockelman, op. cit., p. 79.
12. Ogden (1977) p. 114.
13. Pannenberg (1985) p. 323, note 23.
14. Op. cit., Ch. 7/II, p. 323.
15. Op. cit., Ch. 9/II, pp. 505–15.
16. Paul Tillich (1978a) pp. 182–3.
17. Trusted (1984) Ch. 11.
18. B. Blanshard, 'The Case for Determinism', in Hook (1961) p. 19.
19. Dennett (1984) Ch. 6.
20. Dennett (1984) Ch. 7 and especially p. 164.
21. Thorp (1980) Chs 5 and 6.
22. Ibid., p. 107.
23. Ibid., p. 87.
24. Ibid., pp. 87–90.
25. This question will be addressed in Chapter 5.

Chapter 5: On the Use of Scientific Arguments

1. B. Carter, 'Large Number Coincidences and the Anthropic Principle in Cosmology', in *Confrontation of Cosmological Theories with Observational Data*, ed. M. S. Longair (Dordrecht: Reidel, 1974) – as cited in Leslie (1989) p. 215.
2. Leslie (1989) pp. 135–6, and Ch. 5 of that work.
3. Polanyi (1958) p. 404.

Chapter 6: The Human Brain: Substratum of Freedom

1. I recognise that some scientists have great *a priori* difficulty with the idea that an organism may transcend the sum of its parts. I take it that such self-transcendence is the case; this stance needs to be founded upon scientific observation rather than prior metaphysical commitment.
2. Nelson (1982) pp. 10–11.
3. Einstein (1935) quoted by Salmon (1984) p. 245. Only in recent years has experiment indicated that there is no underlying local mechanism, for instance, to the complementarity of the spin of divergent particles.
4. Thorp (1980) Ch. 5.
5. Quoted by Emmett (1984) pp. 58–9.
6. Anscombe (1963) Sec. 49.
7. A. C. Danto 'Basic Actions', in White (1968).
8. Emmett (1984) p. 100.
9. Immanent causation, in W. E. Johnson's sense, relies only upon the notion of the brain functioning as a Gestalt. It should not be confused with immanent causation as used, for instance, by R. Chisholm – a concept very unpopular with non-dualist philosophers.
10. Taylor (1979) p. 249.
11. The problem of what happens when we try to retrieve a memory is fascinating. Yet, I have been unable to locate any strictly philosophical literature specific to this, although it is dealt with in Edelman (1992).
12. Eccles (1973) p. 147.
13. Taylor (1979) p. 74.
14. E. Caspari, 'Evolutionary Theory and the Evolution of the Human Brain', in Hahn (1979).
15. Eccles (1973) pp. 148–58.
16. Cited by Eccles (1973) pp. 160–7.
17. Eccles (1973) p. 72.
18. The chemical transmitter in neuromuscular cells is acetylcholine, but in cerebral neurons there is a range of transmitters – acetylcholine, glutamate, glycine, GABA and probably others.
19. The non-local nature of consciousness should not be confused with the localised function of consciousness arousal by the ascending reticular activating system.
20. MacLean (1973), as cited by Taylor (1979) p. 29.
21. Smith (1970) p. 344.
22. Granit (1977) p. 82.
23. Smith (1970) p. 347.
24. Edelman (1992) was reviewed by me in *Theology*, **XCVI** (1993) pp. 395–6.
25. Edelman (1992) p. 82.
26. Edelman (1992) pp. 233–7.
27. The reference is to Wittgenstein's *Philosophical Investigations*. It is cited without adequate detail by Edelman (1992) pp. 263–4.
28. Edelman (1992) p. 236.

29. The notion of a Gestalt is very well defined by Edelman (1992) p. 87.
30. But compare this claim – presumably but not explicitly about the cortex – with that of Eccles (1989) that at least the cerebellum is 'hard wired'. It is not clear to me as to whether or not there is a genuine contradiction here or whether the cortex and the cerebellum differ in this respect or whether Eccles' notion of 'hard wiring' is in fact definitionally incompatible with Edelman's theory of neuronal group selection. This question is further discussed in Chapter 7. I take it that in the context of that discussion Eccles means something different by 'hard wiring'. Edelman likens 'hard wiring' to a computer programme. Eccles is pointing to a much subtler meaning. For him, 'hard wiring' is the chemical encodement of possible structure prior to experience by the subject.
31. Edelman (1992) p. 85.
32. I suspect that this notion of a hierarchy of maps and, hence, of much monitoring within the brain of epigenetically independent units helps us to understand the counter-intuitive process of striving to remember that which we have forgotten.
33. Edelman (1992) pp. 108–9; italics as in original.
34. See Fig. 10.1 in Edelman (1992) p. 103.

Chapter 7: The Evolutionary Setting of Human Freedom

1. For a simple description of the relationship between the quantum phenomena and macromolecular stability, see Schrödinger (1944) Ch. 4.
2. E. Caspari, 'Evolutionary Theory and the Evolution of the Human Brain', in Hahn (1979).
3. Smith (1970) p. 344.
4. See Sir Karl Popper, 'Evolutionary Epistemology', in Pollard (1984) pp. 239–55.
5. See Gould (1980), cited by Pollard (1984) pp. xv, xvii, and Gould (1977), cited by Kitcher (1983).
6. For an account of Lamarckianism, see Schilcher (1984) p. 7.
7. See Stansfield (1977) pp. 339–41.
8. H. W. Temin and W. Engels, 'Moveable Genetic Elements and Evolution', in Pollard (1984) pp. 173–201.
9. D. R. Brooks, 'Evolution as an Entropic Phenomenon', in Pollard (1984) pp. 141–71 and esp. p. 155.
10. Goodman (1982) p. 184.
11. I am not suggesting that there was a well-understood causal necessity at work here. The force of necessity is hypothetical:

$$(\text{stellar evolution}) \supset \Box(\text{right hydrogen/helium}).$$

12. Unless otherwise acknowledged, all information in this section is drawn from Pitot (1986).

13. Monod (1974) p. 114. I am uncertain as to the contribution of chance to evolution as it is now being understood in chaos theory – that sort of chance which is probably determinate but which manifests itself in particular fashion in large, far-from-equilibrium systems.
14. Pollard (1984) p. 183.
15. Polkinghorne (1989) p. 66.
16. Trefil (1983) pp. 16–18.
17. Barrow (1983) p. 156. However, Dr Polkinghorne prefers a ratio of $1 : 10^3$, as established in a personal communication with him.
18. GUT, grand unification, that energy regime, prior to the decoupling of the constituent forces, at which the strong, weak and electromagnetic forces were symmetrical. It adheres at $t = < 10^{-35}$ s.
19. A. Vilenkin, 'Cosmic Strings', in Hawking (1983) pp. 163–9. Monopoles and strings are at best elusive and at worst non-existent. My argument does not rely upon their existence.
20. Narlikar (1988) p. 177.
21. Ellis (1988) pp. 285–6.
22. Davies (1982) pp. 71–3.
23. Davies (1982) p. 73.
24. I would maintain that the fine-tuning problem as such is not sufficient reason to believe in a creator over the weak anthropic principle's agnosticism. However, Leslie (1989) and Polkinghorne (1988, 1989) believe to the contrary. I dissent from Leslie's argument *inter alia* in that I believe that his analogy between his Neoplatonic God and the principle of simplicity applied in mathematics to infinities is misguided and inappropriate.
25. 'The Reality of Time', in Mehlberg (1980) pp. 235–42.
26. Mehlberg (1980) p. 236.

Chapter 8: The Necessity of Natural Evil

1. Formally speaking, the adequacy of the defence can be demonstrated in terms of Lewis's S5. (See Bradley (1979) pp. 205–10.) The argument is

$$(S \supset \Box\Diamond S)$$

This can be derived from two axia of S5:

$S \supset \Diamond S$ (axiom of S5)
$\underline{\Diamond S \supset \Box\Diamond S}$ (axiom of S5)
$S \supset \Box\Diamond S$ (hypothetical syllogism)

2. See Plantinga (1974) Ch. 3 for citations of Quine and other opponents of *de re* necessity.
3. The phrase 'laws of nature' tends to be used to designate the way things are in terms of the fundamentals and constants of physics. It

is an unhelpful phrase, as it begs the question. Davies (1982) argues that there are many physical constants which might have been different *prima facie*. In fact, physics and cosmology have, to date, no clear understanding of whether 'might have been different' is a meaningful claim about physical constants.

4. Plantinga (1974) pp. 193–5 and Plantinga (1988).
5. J. Mackie, 'Evil and Omnipotence', in *Mind*, **64** (1955) pp. 200, cited by Plantinga (1974) pp. 167–8.
6. Plantinga (1974) pp. 167–8.
7. The particle-boundary problem briefly is this. In a fine-tuned universe with non-chaotic boundary conditions, the information generating the uniformity on a large scale would need, *per impossibile*, to travel faster than light, since some parts of the universe are so remote one from another that a relativistic particle would not have been able to cross the diameter of the universe in the time available.
8. 'What is it like to be a bat?', Nagel (1974) Ch. 12.
9. Castañeda (1959) p. 107.
10. Bradley (1979) pp. 121–7.

Chapter 9: The Logic of Human Evil

1. See Plantinga (1974a) pp. 166–7, for example.
2. Parkin (1985) p. 23.
3. I do not deal with the concept of the diabolic in this book. However, my basic stance is that such language is a religiously important metaphor which, if taken literally, creates philosophical problems about dualism and psychological problems about denial, splitting and projection.

Chapter 10: Freedom and Human Evil: the Evolution of the Self

1. Falsifiability is Sir Karl Popper's criterion by which he distinguishes scientific from non-scientific knowledge. This criterion is by no means beyond dispute itself.
2. Bowlby (1988) lecture 4.
3. Bowlby (1988) pp. 24–5.
4. R. S. Lazarus is not to be confused with A. A. Lazarus, who is also a cognitive behaviourist.
5. Lazarus (1963) p. 39.
6. Lazarus (1963) p. 81.
7. Lazarus (1963) p. 44.
8. Guntrip (1977) Ch. 5.
9. Guntrip (1977) p. 107; quotation marks and italics as in original.
10. Guntrip (1977) p. 111. The exclusive language is as in the original.
11. Guntrip (1977) p. 113.

12. The oft-used translation of Freud's word 'Triebe' as instinct is inaccurate. The word has a more general and less scientific sense than the English word 'instinct', which is part of the technical vocabulary of biology. For a fuller discussion of the translation of Freud's works see Bruno Bettelheim, *Freud and Man's Soul* (London: Fontana, 1985).
13. The orthography '(m)other' I borrow from Josephine Klein (1987). It makes two separate points. The (m)other is not necessarily the biological mother, but the primary carer who may well be male. Similarly, 'breast' includes 'bottle', but stands for holding and containing. The (m)other also represents the other, the fact that the self is not alone in the universe, that the neighbour exists to be loved.
14. See Klein's 1946 paper 'Notes on some Schizoid Mechanisms', in Klein (1988b) especially pp. 3–5.
15. For an eloquent description of paranoid–schizoid phenomena in the nursing profession see Isobel Menzies, *The Functioning of Social Systems as a Defence against Anxiety* (London: Tavistock Institute, 1970).
16. See Cashdan (1988) for a full account of the place of projective identification in dysfuction and in therapy.
17. Ogden (1992) p. 172.
18. Ogden (1992) p. 176.
19. D. W. Winnicott, 'The Place Where we Live', in Winnicott (1991) pp. 104–10; all brackets are as in the original.
20. Ogden (1992) pp. 208–9.
21. J. Klein (1987) pp. 309–10.
22. F. Tustin, *Autistic States in Children*, cited by J. Klein (1987) p. 79.
23. Klein (1988a) p. 307.
24. Klein (1988b) p. 180, note 1.
25. Klein (1988a) p. 309.
26. Klein (1988a) p. 336.
27. This strength can also be seen as a profound weakness. So ubiquitous is Kleinian theory, one might argue, that it makes no claim that can be falsified. This is part of the debate about the scientific or otherwise status of psychodynamics.
28. Klein (1988b) p. 180.
29. Klein (1988b) pp. 251–2. From 'Our Adult World and Its Roots in Infancy'.

Chapter 11: Towards a Theology of Evil: Conclusion and Prospect

1. 'Little Gidding', lines 239–42, quoted from *Four Quartets* by T. S. Eliot (London: Faber, 1959).
2. See, for instance, Grey (1989) as a fine example of balanced, Christian feminist theology.
3. I have found a stimulating *via media* between gullibility and scepticism in the thinking of Austin Farrer, particularly as presented in Hebblethwaite (1990).
4. See, for instance, Thompson (1990), in debate with Don Cupitt on this

theme. I have argued that there is an analogy between corporate evil and particular corporate structures in my article 'Corporate Responsibility' in the Church of England's journal of social responsibility *Crucible*, October–December (1991).

5. 'Little Gidding', lines 253–9. In these last lines of *Four Quartets*, T. S. Eliot alludes to the unitive vision of Dame Julian of Norwich. This vision was won out of an experience of intense suffering. It is the eschatology of resolution rather than of avoidance or special pleading.

Glossary

This glossary does not aspire to deal with words either which are glossed in the text or which constitute the everyday, working vocabulary of logic or philosophical theology. The meanings outlined below refer only to the meaning of the word as used *in situ*.

Autism A rare disorder amongst children, who become withdrawn and whose language and social development arrest. It is likely, in fact, to be a group of disorders with varying causes. Some are physical, others psychogenic. Older psychogenic descriptions of autism are now out of favour, but Frances Tustin has done much work to suggest that some autisms involve a failure to evolve normally from the paranoid–schizoid to the depressive position (*qq.v.*).

Boundary condition The logical and/or physical starting point of creation. Hawking argues that this is not necessarily a singularity – a point of infinite density. His argument concerns the physical properties of the boundary condition of creation. In my possible worlds analysis in Chapter 8, I use the term to mean the *logically* prior conditions of the process of creation and evolution. Thus, a crucial element in the argument is that the quantum nature of reality is a boundary condition. The results of this are therefore logically necessary to the world as it is. In broadly logical terms, it may be, *prima facie*, that God could have done otherwise, by instantiating a different set of boundary conditions.

Cerebellum An organ of the brain more primitive than the cortex. It is responsible for much pre-conscious coordination. It is physiologically very different from the cortex. It has been extensively studied by Sir John Eccles.

Cognitive-behavioural(ism) An approach to counselling and counselling psychology which emphasises the programmed correction of deficits in both thinking and overt behaviour. It is not to be confused with the philosophical, reductionist stance often associated with the name of B. F. Skinner.

Commissurotomy The surgical severing of the corpus callosum, the nerve bundle through which the two hemispheres of the brain communicate. Used as a treatment for severe epilepsy, this surgery has provided a unique opportunity to research the independent activity of the two hemispheres. Philosophy has seen it as evidence for there being either two distinct consciousnesses in the two half-brains, or the very opposite of that.

Compatibilism The view proposed by J. MacKie and others, that God is logically able to control free-will. It is a major objection to the free-will defence, for it holds that God is still directly responsible for that which people freely do. Were compatibilism true, then free-will would seemingly set no limit to divine omnipotence; it would not be a source of ontological distance between creator and creature.

Cortex/neocortex/neo-neocortex The corrugated and convoluted part of the brain, evolutionarily highly developed in the human species. Areas are termed the neocortex to stress their late appearance in the evolution of animals. Eccles uses the reduplicated version to denote the cortical areas specific to *Homo sapiens.*

Counterfactual conditional A proposition with the form:

If x were the case then y would obtain.

It is a matter of dispute as to whether counterfactual conditionals can be said to have a truth value. In theological discourse it is similarly a matter of dispute as to whether God could know the truth value of a counterfactual conditional. Such knowledge is known as God's *middle knowledge (q.v.).* A belief that God has middle knowledge is called Molinism after the Jesuit de Molina.

Cybernetics The study of self-organising or self-regulating machines. Cybernetic concepts are therefore particularly useful for discussing information processing and its physical substrata. Cybernetic explanation is characteristically negative – analysing restraints. See Bateson (1973) pp. 375–86.

Defence/defense See 'free-will defence'. 'Defense' is the American spelling. I adhere to the British orthography except in direct quotations.

Depressive position See 'Position'.

Diploid cell A cell in which the genetic information is encoded twice, thereby allowing for sexual reproduction and for the existence of a safeguard against an encoding error. Human DNA is diploid.

Dualism Generally, the holding to be two ontologically separate entities of any two qualities which might otherwise be thought of as two aspects of the same entity. Specifically, in respect of the mind–brain problem, the claim that the mind is separate from the brain function in the sense proposed by Descartes or by Eccles. However, a monist may well hold that mind is more than simply brain.

Emergentism A view common to monists and dualists, that the mind, being either a Gestalt function of the brain (monism) or ontologically

separate from the brain (dualism), comes into being (monism) or relationship (dualism) via the evolution of the brain.

Entropy The tendency of disorder to increase and energy differentials to decrease. Conventionally, it is seen as a property of closed, physical systems such as a mixture of hot and cold water. The universe as a whole is subject to entropy – unless it is an infinite, cyclical universe like the so-called Mixmaster model. Life exists only in that there are local instances of increase in order, sometimes referred to as negentropy.

Epidemiology The study of disease patterns across population groups. It reveals patterns without necessarily throwing light upon causal mechanisms behind large-scale behaviour. However, it is powerful in correlating disease with possible environmental factors.

Essentialism The belief that individuals 'possess' essences which are then a source of identity across possible worlds. The problem of transworld identity is a sign of the abuse of possible worlds semantics discussed in Chapter 3.

Ethology/ethological A broad and varied subject, perhaps distinguished by its very variety of interest. Initially it concerned itself with the biology of behaviour. Its classical concerns in biology and kindred natural and human sciences are with issues of evolution, development, control and function. The work of Konrad Lorenz was particularly influential upon John Bowlby's attachment theory and thence on recent psychodynamic thinking.

Eukaryotic/prokaryotic cell The eukaryotic cell is that of the more advanced forms of life on earth. It is characterised by a higher degree of complexity than the prokaryote, allowing it to reproduce sexually, It is also characterised by a lower resistance to temperature, thereby making it a latecomer in the evolution of the early biosphere.

Fine-tuning problem The universe as we experience it has generated life only because a sizeable number of apparently independent constants are finely adjusted. There is no general theory available to explain this. However, the anthropic principle is advanced on this basis. We only observe the universe to be thus because, the universe being thus, we are present as observers. The strong anthropic principle posits a causal fine tuning. The weak anthropic principle posits a fine tuning which is either coincidental or the fruit of there being many (potential or actual) universes.

Free-will defence/free process theology The formal definition of a defence is dealt with in the text of the book and in the Appendix. The free-will tradition of theodicy sees in human free-will, when combined with incompatibilism, a route whereby to absolve God from responsibility for (characteristically, moral) evil.

The free process approach of this book – the phrase is Dr John Polkinghorne's – by contrast sees the need for radically free process in creation as the establishing of a counter to divine omnipotence. This approach does not take human free-will to be a necessary condition of the limitation of divine omnipotence. The free process itself is the basis of the ontological distance between God and creation.

Friedmann universe A model of the universe wherein the curvature is approximately zero.

Functionalism/type–type physicalism Type–type physicalism involves the claim that any particular function corresponds to a unique structure or physical system. By contrast, functionalism asserts that any given function may reside in more than one type of structure or physical system.

Genome/phenome The genome is the genetic information embodied in a cell (the genotype); the phenome, its physical expression in the species (the phenotype). Conventionally, adaptations in the phenome do not feed back into the genome. However, this view is contestable.

Gestalt The general principle that, in some systems, the whole has emergent properties not evident in the sum of the parts. This is not to be confused with the concept of the Gestalt in either perceptual psychology or in Gestalt (Perlsian) therapy.

Humean syllogism The intellectual problem of evil has as one of its *loci classici* the thought of David Hume, as quoted in detail in Chapter 2. Hume's text is not itself syllogistic but is conveniently reduced to a syllogism (as in Plantinga (1974)). It is this form of statement of the intellectual problem of evil which I term the Humean syllogism.

Incompatibilism See 'Compatibilism'.

Inflationary theory A family of theories concerning the very early universe. All have in common a very rapid expansion of the universe by way of a phase transition. Inflationary theories form one set of possible explanations of some – but by no means all – of the fine-tuning phenomena. They are still contentious, with many problems to overcome.

Intellectual problem of evil See 'Humean syllogism'.

Interactionism The concept that mind and brain are causally connected both upwardly and downwardly. It is applicable to both dualism and monism. Dualist interactionism deals with process between two ontologically separate entities. Monist interactionism (a phrase first used by Searle in conversation with Eccles, whimsically) combines a mode of describing complex processes with the claim that there can be downward causation in systems with sufficient complexity to exhibit Gestalt *(q.v.)* effects.

Libertarian free-will In Plantinga (1974), the doctrine that free-will stems from the absence of any alien causation in free acts. At best, this concept is inadequately analysed by Plantinga.

Liberty of spontaneity/liberty of indifference The concept of liberty of spontaneity has at its heart the notion that liberty obtains when a potential is released so that potential causes become sufficient causes. Liberty of indifference obtains, by contrast, when no cause is sufficient and, hence, when a particular option is a matter of indifference in respect of causal sufficiency.

Macro-/microevolution Macroevolution is that aspect of evolution which stems from environmental pressure. Microevolution depends upon the mutagenic processes within the genome *(q.v.)*.

Mark transmission As part of his advocacy of statistical relevance explanation, Salmon (1984) distinguishes true mechanisms from pseudo-mechanisms. The former are characterised by mark transmission. Salmon quotes a number of illustrations of what might constitute a valid mark transmission.

Materialism Throughout this book, materialism is a commitment to the view that all mental phenomena have physical substrata. This is not a reductionist viewpoint. It is, of course, nothing to do with materialism in the Marxist sense.

Mechanistic physicalism The commitment to the viewpoint that causal explanation requires reference to mechanisms rather than laws. The phrase is used by Nelson (1982). See 'Mark transmission'.

Metapsychology A term used by Melanie Klein to indicate that part of the theory of psychology which cannot be falsified but must be taken as an *a priori* or *ex hypothesi*.

Microwave background The isotropic, background radiation discovered at 7 cm wavelength, indicated that the universe is uniformly bathed in a background temperature of 2.7 K and then was taken as a virtual proof of the big bang over steady state theories. The isotropy is good to better than one part in 3×10^5.

Middle knowledge/molinism See 'Counterfactual conditional'.

Mitosis A method of cell division in which the nucleus divides into daughter nuclei containing the same number of chromosomes as the parent nucleus.

Monism The concept that the mind is not an ontologically separate entity from the brain. See 'Dualism' and 'Interactionism'.

Neoplasm A growth of new tissue and, hence, a cancerous growth.

Neotony The continuance of childhood activities into later life, such as the adult use of play.

Neuroblast A foetal cell. A cell prior to its differentiation or development into its mature state. The term is used by Eccles to describe the precurser of the Purkinje cell within the cerebellum *(q.v.)*.

Neuron/neural net The neuron is the brain cell type in which subsists human mindedness. The other cell population of the brain – the glial cells – are responsible for the brain's metabolism. Neurons function electrically, chemically and physically. Neurons form complex networks of stimulatory and inhibitory synapses. These I refer to as neural nets. They are subject to the indeterminacy of the synaptic gap. They also exhibit feedback.

Neutralist theory In evolutionary theory, this is the belief that the vast majority of mutations in the genome are neutral and so are conserved within the genetic pool. Neutralism is important in suggesting that many mutations are conserved without reference to macro evolutionary pressure, then the total number of conserved mutations is very much greater than would otherwise be the case.

Object A technical word in the vocabulary of psychodynamics. It refers to any focus of libidinal desire. It can be either a part object such as a human breast or a whole object such as the mother. In Kleinian theory, objects can be external – in the real world – or internal – in the mind of the subject. Klein's theory of infant development postulates that external objects can be internalised – introjection – and vice versa – projection.

Object relations theory A school of psychoanalysis associated with the names of W. R. D. Fairbairn, D. W. Winnicott and Harry Guntrip. It looks to the work of Melanie Klein, but Klein is still too close to Freudian instinct theory to be regarded herself as an object relations theorist. The movement was until recently almost wholly British, because Klein was deeply influential in the United Kingdom in a way that was not true in the United States of America. Recently, object relations theory has become influential in the USA. led by such people as Sheldon Cashdan and Thomas H. Ogden.

Object relations theory posits that the main drive in infants and adults is the need to form relationships rather than to satisfy the drives such as sex and hunger, which are associated with the life and death instincts. It emphasises the importance of the initial three months of life and of the mother–child relationship for future mental well-being.

Oedipus complex/Oedipal phase The Oedipus complex was originally hypothesised by Sigmund Freud, but was also acknowledged by Melanie Klein, who wrote an important paper on the subject in 1945.

Oedipus was a figure in Greek mythology who blindly killed his own father and married his mother. Freud postulated that the growing (male) child unconsciously wishes to kill his father in order to possess his mother sexually. Freud was characteristically uncertain about the female child, although he developed the complementary hypothesis of the Electra complex. Today, the notion of the Oedipus complex may be applied to children of either sex.

Paranoid–schizoid position See 'Position'.

Particle horizon A particle horizon is the surface of a sphere of space, such that a particle travelling at the speed of light from the centre of the sphere at the moment of creation would at the present moment have just reached that surface. Areas of space separated by more than this distance are necessarily causally unconnected – presupposing that there are no superluminary particles, or their logical equivalents.

Phantasy In the theory of Melanie Klein, phantasy is the characteristic mode of thought of the very young infant particularly in the paranoid–schizoid position. The child does not conceptualise, but holds 'memories as feelings' and then constructs reality on a 'best guess' basis. Phantasy bears some similarity to Freud's notion of primary thinking, which has a grammar all of its own, so to speak.

Phenomenology/existential phenomenology A school of philosophy concentrating upon a careful description of conscious experience. It originates in the work of Hüsserl. Some phenomenologists, for example, Paul Ricoeur, often referred to as existential phenomenologists, dissent from aspects of Hüsserlian epistemology.

Polygenic Describes a system which is such that any given input may generate more than one particular output.

Position In the theory of Melanie Klein, the infant begins life in a state that she came to call the paranoid–schizoid position (after W. R. D. Fairbairn). It matures into the depressive position. The paranoid–schizoid position is characterised by feelings of persecution and by the splitting off of painful or unacceptable feelings and experiences. In the depressive position, the infant comes to recognise that other people exist as whole objects, people like herself and that consequently the world is neither wholly good nor wholly bad. The concept of a position centres upon that fact that Klein is most certainly not describing two temporally sequential phases, but rather two states of affairs out of which we may operate at any point in our lives.

Probabilistic problem of evil A sophisticated contribution to the compatibilist (*q.v.*) debate, in which the apologetic thrust is to demonstrate that it is reasonable to believe that God could not have rendered any given amount of evil less probable. Cf. Plantinga (1988).

Prokaryotic cell See 'Eukaryotic cell'.

Proper/alien causation These are mutually exclusive and together exhaustive. A cause is proper to a system if it is internal to that system. Thorp's hegemony of the mind would invoke some proper causes at least.

Psychodynamics The science which underlies psychoanalytical practice and is derived from the work of Sigmund Freud. It is broadly speaking concerned with the influence of the past upon the present via repressed memories and other influences.

Psychosis/psychotic A psychosis is one of a number of serious mental illnesses, usually distinguished from the neuroses in terms of the patient's loss of grasp of objective reality in psychotic conditions. In fact, the borderline between the two categories is unclear.

Quantum theory A theory concerning the behaviour of physical systems based on the idea that they can only possess certain properties, such as energy or angular momentum, in discrete quantities (quanta).

Reductionism The theory that any complex system can be completely understood in terms of its constituent parts. See 'Gestalt' and 'Emergentism'.

Saltatory theory In evolutionary theory, the notion that evolution happens in jumps rather than gradually.

Stochastic (< Gk στοχαζεσθαι = to aim at, ∴ to conjecture.) A process involving a random variable, such that its successive values are not independent, is said to be stochastic. Stochastic processes are therefore discussable in terms of probability.

Substratum The term I use primarily to express the relationship between mind and brain in monist interactionism. The neural structures and functions are the substrata of mental phenomena, which are ontologically inseparable from them but cannot be reduced to them. The term may be transferred to other functionalist relationships.

Synapse The organ of contact and communication between one neuron and another; the synapse is also known as the bouton. It has been extensively described by Sir John Eccles (1964). It is significant as a contributor to the brain's flexibility.

Teleology This term has two distinct meanings which should not be confused. It can denote the doctrine that there is evidence for purpose or design in the universe. This would imply the existence of God at least in a deistic sense. See 'Theist'. In biology, this would imply that natural

phenomena are predetermined in their operation to the extent that the teleological principle is an alien cause. This is vitalism – the doctrine that there is an immanent guiding principle in nature. Vitalism is both controversial and in philosophical ill repute.

At no point in this book do I espouse vitalism.

Teleology can also be the doctrine that certain phenomena are best described in terms of purpose rather than cause. Evolution is, in this sense, purposive.

It is part of this book's argument that God can utilise teleology in this second sense.

Theist One who believes in God. In this book, I take the term 'theist' to have the sense of one who believes in God as defined in Hick (1990).

However, the theist of the Humean debate is perhaps better described as a deist – one who believes in God only as the 'great designer'. Much conventional theodicy in the area of the intellectual problem of evil has failed to do justice to the full content of the notion of God in Christian practice.

Theistic/divine determinism The doctrine that God, being omnipotent, in fact decrees all that is and in principle may decree anything that is logically possible. The argument of this thesis is that:

(i) divine determinism would be more pervasive and more destructive than the imagination often warrants;
(ii) the ontological distance needed to counter theistic determinism is pervasive, holistic in operation and costly. See J. Moltmann's notion of creation as divine kenosis.

Theodicy Often used loosely as a synonym for the study of the problem of evil, the term strictly refers to the apologetic task of rendering belief in God logically coherent in the face of the human experience of evil. Theodicy is thus stronger than defence (*q.v.*).

Theoretical theodicy Surin's (1986) term or what Plantinga calls the abstract intellectual problem of evil. It begins classically with the Humean syllogism (*q.v.*). Surin contrasts it with the practical theodicy of such writers as Dorothee Soelle, who claim that the problem is resolved through the praxis of encounter and struggle. Surin rejects both approaches.

Transitional object/phenomena Donald Winnicott postulated that a range of objects is used by the infant as a source of security to allow the infant to make the transition from a state where the mother must be present most of the time to the state where mother's absence is acceptable. The teddy bear is perhaps the most obvious transitional object. However, transitional phenomena are arguably observable in much of adult life – play, sport, entertainment and not least psychotherapy.

Type–type physicalism See 'Functionalism'.

Unconscious In Freud's thought, much of the human mind is not conscious, but nevertheless has thoughts, wishes, desires, fears and so on. Most psychodynamic theorists hold a similar notion, although without some other of Freud's concomitant theories such as the nature of the Id.

Vale of soul making Hick's (1978) term for his own approach to theodicy. Suffering has a divinely ordained purpose – to enrich the human personality, to call the soul into existence.

Vitalism See 'Teleology'.

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Page references in **bold print** refer to discussions about, accounts of or whole sections on the topic. Other references are incidental, briefer or of less importance.