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Divine Activity in a Scientific World *

I. INTRODUCTORY

The Being of God

Our Christian Faith is in One who transcends in His nature every category of human description. We know of Him only what He has been pleased to reveal to us; and it must be one of our controlling convictions that there is infinitely more to the Being of God than anything or all that our minds can now apprehend of Him. This is no less so because we believe that in Jesus Christ God Himself walked among us, 'in the form of a servant', 'in Whom dwelt all the fulness of the Godhead bodily'.

'He who hath seen me hath seen the Father', said Jesus. No more perfect revelation of God could have been given to man in human terms. That is our faith. But this of course is not to say that there is no more to the Being and Nature of God than He revealed of Himself in Jesus Christ. On the contrary, 'as the heavens are higher than the earth, so are my ways higher than your ways, and my thoughts than your thoughts'. We have to steer a middle course between the arrogance of the word-perfect evangelist who 'has the Plan of Salvation off pat', and the inverted pride of the man who refuses to have truck with Biblical propositions because 'God is far greater than any propositions our little minds can produce'. If God has spoken, woe betide us if we spurn or ignore His revelation. Yet we cannot remind ourselves too often that our most Biblical statements about God represent, at best, selective projections, of one aspect at a time, of a Being whose total activity probably has aspects unrevealed and utterly unthinkable to us.

The Precarious Logic of Theology

Our position, then, in attempting to make any comprehensive or systematic statements about God, is logically very insecure. It is just no good our quoting a series of inspired scriptures, and then supposing

* Revised version of a paper presented to the Annual Conference of the Research Scientists' Christian Fellowship in September 1954.

that the guarantee of inspiration will extend infallibly to all our apparently logical deductions from them. For in dealing with Biblical sentences about God we are rather like a man confronted with a large number of photographs or projective drawings of portions of a girder bridge. In each he finds a spider-work of lines at all angles to one another. Unless he realises at the outset that the subject has more dimensions than his two-dimensional representations of it, he will flounder in contradictions as soon as he tries to relate his different pictures. Even when he knows this he may still find grave difficulties in fitting all into a single whole, and may indeed be driven to doubt that they depict one and the same subject, unless he discovers and remembers from what angle each projection has been made. In the same way our own theological efforts, no matter how conscientious, are continually beset by the risk that we may be trying to force the wrong kind of fit between Biblical utterances; mistakenly assuming that if all are valid, then all must be valid from the same standpoint at the same time.

Our own position in fact is worse; for the analogy would be closer if the original subject of the two-dimensional representations had not just three but an indefinite number of dimensions, of which our projections represented an unspecified proportion.

The Problem of Logical Standpoint

When therefore we seek, as we are in duty bound, to apply our minds to inspired scriptures, we have to face two distinct tasks. One is, of course, to trace the logical consequences of inspired doctrine. But the other and prior task, without which, as a preliminary, the first may be positively misleading, is to identify as best we can the logical standpoint or 'angle of projection'—the conceptual frame or language system to which belong the terms in which the doctrine is expressed. Only then can we know to which other questions and doctrines it can be deductively related, and avoid being subtly misled into deducing uninspired nonsense from inspired statements.

The trouble is that the statements of scripture, not unnaturally, are seldom if ever labelled with their logical standpoint. This we are left to infer from the context or the terms in which they are expressed. The problem is not of course a new one, nor has the proper solution remained unrecognised, at least implicitly. Spurgeon for example declared himself 'an Arminian (emphasising man's responsibility) in the pulpit and a Calvinist (emphasising God's Sovereignty) on his knees';

and throughout the ages the saints have testified how, in their experience, certain revealed truths have acquired practical meaning in some situations and have seemed quite irrelevant in others, although superficially all might have been thought to have logical and even paradoxical relevance in both kinds of situation.

Having it Both Ways?

But although the Church has long recognised in practice the distinction between such doctrinal 'paradoxes' and flat contradictions, most theoretical attempts to build them into theological systems have left much to be desired. 'Having it both ways' is the summary description most likely to spring to the outsider's mind; and who can blame him? No logician could fail to sympathise with David Hume's outraged denunciation of some of his Calvinist contemporaries' pretensions to harmonise Divine sovereignty with human responsibility. Intellectual dishonesty, with all its fruits, finds fertile soil to this day in minds brought up to affirm unexplained verbal contradictions in the name of Revelation. Not, indeed, that I would diminish one whit the force of Calvin's original testimony to these doctrines. On the contrary, I believe that many of our present troubles in the boundary-field of science and theology, especially with regard to the doctrine of man, have been exacerbated by forgetfulness of the aspects of the truth proclaimed by Calvin, and by St Augustine and St Paul before him. Some such doctrine of God's sovereignty, as I shall argue later, is indeed not only a possible but a necessary complement of the doctrine of our responsibility, when once the different logical standpoints or language-systems of each have been identified. It is not the doctrine, but the improper discipline of arguments revolving around it, which deserves to be deprecated.

The Aim of the Present Paper

The present paper then has two needs in view, though with no illusions that it will meet them. First, there is the need for clarification of our own thinking about Divine activity in relation to humanly known events. But secondly, and surely close to all our hearts, there is the need to remove gratuitous stumbling-blocks in the path of thinking enquirers in the field, not only of science, but of theology itself. On the one hand, there is ultimately no stopping-point in our enquiry, short of the age-old mystery of our freedom under God's sovereignty. This

nettle, I believe, we must grasp, even if in consequence we are only stung to more thought and prayer. On the other hand, while we could never dare wish to diminish the true 'offence of The Cross', I believe that something could even now be done to diminish some unnecessary 'offences' due to faults in our own logic, and so make the really irreducibly offensive issues of the Christian Gospel stand out the more clearly.

It goes without saying that this paper will leave all our genuine mysteries as mysterious as ever. Its aim is but to re-focus our attention on their nature.

2. THE BASIC PROBLEM

The World of Objects

How shall we put the basic problem that confronts us? To each of us there comes a continual flood of events of experience—sights, sounds, itches, pains. These events are not wholly chaotic. They cohere sufficiently to evoke in us a constantly changing but inherently stable awareness of a 'world of objects' acting on us and being acted on by us. Our ordinary human dialogue and most of our thought takes this world of objects rather than the events of experience as its logically given starting-point.¹ Here then is our problem: What is the status of this world of objects? By what thought-model may we properly organise our thinking about it and its relation to persons such as ourselves on the one hand, and to God on the other?

Basic Questions

The problem breaks down at once into several questions.

(a) What is the secret of the regularities of the world? There are two basic kinds of regularity, to which we give the names of continuity and causality. By continuity we mean the persistence of many features of our world substantially unchanged from moment to

¹ Some philosophers have referred to this world of objects as an 'inference' from the events of experience. But this I suggest is strictly a misuse of terms. I do not at this moment for example *first* observe certain visual events and *then* make an inference that there is ink on the paper before me. My awareness that there is ink on the paper (my readiness-to-react-as-if-there-is-ink-on-the-paper) is my immediate way of apprehending the visual events. Even to call it an 'interpretation' could give a misleading impression, if it were taken to suggest that one could apprehend and cogitate upon the raw events without or before making any interpretation.

moment. I see-the-same-paper¹ before me now as I remember seeing a moment ago. Substantially the same landscape appears through my bedroom window from one morning to the next.

By causality we mean a relationship of regular and necessary entailment between one event and another. Given one event A which we have learned to call the necessary and sufficient cause of another, B, we find that we may reasonably expect B to follow. What thought-model finds a satisfactory place for these regularities?

(b) How are my mental activities: thinking, purposing, deciding—related to the activity of the world of objects, especially that of my own body? Can I say strictly that I *cause* events in the object world (e.g. in my hand, or my brain); can I say that I *act on* it? If so, what kind of causal link can we conceive of between me as agent and the world of objects? If not, how can we properly speak of the relationship of my decisions to the events consequent on them?

(c) How are the will and the activity of God related to the activity of the object-world? Can we say strictly that God *causes* events? Can we say that He *acts on* the world of objects? If so, what kind of causal link can we conceive of between the Absolute and the changing objects of this world? If not, how can we properly speak of the relationship between Divine Activity and humanly known events?

Nature and Supernature

It will be seen that the words 'natural' and 'supernatural' have not yet entered our discussion. I have deliberately spoken of the 'object-world' rather than the 'natural world' because many events in the object-world—above all the life of Our Lord—have qualities which mark them in traditional language as 'supernatural'. The ideas of 'nature' and 'supernature' will find their places at a later stage.

3. THE STABILITY OF OBJECTS

Two Extreme Positions

Philosophical speculation has long ranged between two extremes in answer to the problem of the continuity or stability of objects. Why

¹ The hyphens here are important for strict accuracy. All I know for certain is the experience of seeing-the-same-paper-as-I-remember-seeing. To break up the hyphens always requires careful justification and can even sometimes lead to contradictions, e.g. when what is seen is not an inert object but a living plant or animal, with continually changing material constituents.

do objects like stones and trees persist from day to day? Extreme materialism answers: 'Objects are made up of permanently existing particles of matter really "out there" before you.' Extreme idealism, *per contra*, replies 'Objects are creations of the mind. They are real enough as long as any mind is apprehending them, but their stability is only derivative from the permanence of the corresponding eternal ideas.' These are not of course definitive answers, but they will serve us as caricatures of two opposing attitudes and emphases that must be reckoned with before we have done.

The Impact of Contemporary Physics

Twentieth-century physics has cast serious doubt on some details of the classical materialist thought-model. Quantum mechanics now enables us to calculate only the distribution of probabilities of different sorts of microscopic events which we call 'impact-of-a-photon', 'transition-of-an-electron' and so forth. The events we observe can at best be interpreted only in a restricted sense as signs of the motions of particles; and at worst we meet with flat contradictions if we try to use a thought-model in which such 'particles' have any permanent individuality. The statistics simply don't work out right unless we drop the idea that each 'particle' must have its own individual location at all times, and that change occurs only by the motion of such particles through space. Instead, events such as 'impact-of-an-electron' have to be thought of much more in the way that an actuary thinks of 'impact-of-influenza' in a population, where it is possible to speak of 'a *flu-wave* moving over the country' without at all implying the motion of 'flu-victims'. In much of modern physics, as in the actuarial description of a flu epidemic, it is strictly speaking only the pattern of *probabilities of events* that moves continuously from place to place, and has some degree of temporary stability.

Yet despite these developments, on which there is not space to enlarge, I do not believe that the approach of naïve realism or materialism is essentially ruled out by modern physics. As long as physics adheres to its concepts of the conservation of energy and conservation of electric charge, it seems *logically* possible to hold that objects are stable because of the stability of some kind of independently existing and indestructible 'stuff'. I think that such a thought-model is unsatisfactory on other grounds, and that physics itself suggests a better one which we are to discuss; but the view sometimes expressed¹ that

¹ See, for example, C. F. von Weizsachen *The World of Physics*.

recent physics conclusively outlaws materialism is based, I think, on a misconception.¹

Against idealism, also, powerful arguments have been brought which need not detain us now. Suffice it to say that such objections as there are have gained no strength from recent science, nor could they very well have done so. I have mentioned these classical rivals not in order to canvass the merits of either, but rather to provide us with reference-points, relative to which to locate and orient our own thinking.

Biblical Clues

When we turn to consider the Biblical passages bearing on this issue, we seem at first sight to find unequivocal support for a position of naïve realism. The Creation narrative, for example, strongly suggests a picture of a material world 'out there', remaining the same from moment to moment and day to day because God has made it so once upon a time and left it.

Yet we have only to think of some of the Christological passages of the New Testament to realise that the idealist too could find his proof-texts. 'In Him all things hold together.' 'Who upholdeth all things by the Word of His power.' . . . Any number of passages seem to favour an idealist rather than a realist standpoint, suggesting that the world is held in being as an Idea in the mind of God. 'Immanent yet also transcendent' is our theological way of describing God's relation to the world. Irritatingly, the Bible refuses to come down on one side or other of the traditional fence. Uncompromisingly, theology seems determined to 'have it both ways'.

A Possible Synthesis?

What thought-model then can we use, that may do some justice to both aspects of revealed truth and also to our commonsense and scientific experience? (We need not expect to find a perfect one.) Scripture and commonsense alike suggest to us that there is some truth in both the materialist and the idealist answers. Suppose then that we explore the possibility adumbrated in the opening paragraphs, that the materialist and idealist models fail, not because their propositions are false, but because they are of *inadequate logical dimensionality*—they are each trying, metaphorically speaking, to cram all the information in a

¹ D. M. Mackay, 'Counter-Revolution in Physics', *The Listener*, 10 April 1958.

multi-dimensional subject into a single two-dimensional projection. Like the plan and elevation views of a girder bridge, neither is false yet each alone would mislead if regarded as a complete account. If this is so, the remedy may be to try to devise a thought-model having *more logical dimensions*: one in which two or more different but complementary descriptions may be seen to be rationally and compatibly related, and which may help us to avoid trying to relate them in wrong ways.

4. A UNIFYING THOUGHT-MODEL

Static and Dynamic Stability

In order to develop our new thought-model we must go back to take as our logical starting-point not the world of objects, nor the world of ideas, but the events of experience. These events show a certain kind of coherence which we express by saying that the world of objects is relatively stable. The question is how to interpret this stability. Suppose, for example, that an artist wants to produce a stable picture of a building. He has two essentially different methods at his disposal. Conventionally, he may lay down a distribution of paint or other material in the appropriate pattern. This is a *static* method, giving *static* stability to the resulting picture. Alternatively, nowadays, he could generate a distribution of discrete *events* in the appropriate pattern, such as the sparkle of electron-impact on the screen of a television tube. This is a *dynamic* method, giving *dynamic* stability to the resulting picture. In the static case, the stability of the picture depends on the stability of the delineating matter. In the dynamic case it depends on the stability of the *programme of events*.

The example of a television picture is crude and only partially satisfactory, but it represents perhaps our most familiar example of dynamic stability. Obviously for our purpose we want to forget that the sparkle of light takes place on a material screen. The essential point is that 'objects in the picture' remain stable from one frame to the next because there has been no change in the pattern of control-signals which determines how the tiny sparks of light are to be distributed, how the events are to be related. The whole show could be altered in an instant as drastically as the originator might wish. The stability or otherwise of the picture, in short, reflects the will of its originator.

Towards a New Thought-model

The concept of dynamic stability clearly suggests a third kind of thought-model in terms of which to organise our thinking about God and our world. The suggestion which I believe to represent Biblical teaching on the subject is that in ultimate terms the events of our experience are directly given by God, and that the coherence we find in these events is to be attributed directly to the continually coherent and infinitely detailed Will of God their Giver. The stability of the world of objects is then to be conceived of as a dynamic stability, completely dependable for just so long as God wishes to give us experience in the current pattern, yet expressive only of one phase of the Divine Plan and Purpose, and thus liable, in His good time, to be replaced by something unimaginably better.

What the Model Does Not Imply

Here we must at once guard against a possible misunderstanding which the example of the television picture might seem to support. I am not now suggesting that the *objects* of our world are made up of patterns of 'events' out in three-dimensional space, in the way that the objects of the picture were made up of patterns of events on the screen of the tube. There may be a sense in which this also is true, but that is not what I mean. It is our immediate moment-by-moment *experience*—the complex flood of sights, sounds, itches, pains—which I am now suggesting that we should think of as a pattern of events given by God and owing its coherence to Him.

In a crude way we might think of *ourselves* (the knowing subject-agent) as the 'screen' in the analogy of the television picture; not that we are spectators of events *on* a screen (even a screen inside our own heads), but that our successive experiences (sights, sounds, itches, pains) are roughly analogous to the successive sparks on the television screen. Screen and viewer, as it were, are one and the same.

This point is so important that I should like to make it clear in another way. According to our suggested thought-model, it is rather as if the knowing subject were a vastly complex musical instrument, like a great organ, whose music constituted his experience. The stable objects and features of experience are then roughly analogous to the recurrent chords and stable themes of a Bach fugue. The stability once again is dynamic. The whole programme could change at the will of

its originator, who for the Christian is God Himself. That it apparently has not done so for thousands of years (except at special points), and may not do so yet awhile, is (according to the Bible) because His present programme is not yet completed.

This second analogy should also prevent our thought-model from being taken to imply that there is somewhere a 'T.V. Studio' world from which 'real' objects like tables, chairs and suet puddings are being televised onto the 'screen' of our experience. On the contrary, it is important to understand that the reality of the tables and suet puddings of our experience is in no way affected by our discussion so far. In the language-system of the object-world, the question of the origin of our experience cannot even be raised, let alone answered in a way disturbing to our view of its reality. The term 'real' as used in object-language about things in the object-world serves merely to distinguish some objects from others (such as mirror images) which we say are not real. Nothing could be more 'real' in this sense than a suet-pudding, and nothing I am saying now could diminish its solid reality one whit.

It is only when we change to the language-system of personal experience, in which the basic concepts are not *objects* like tables and puddings but events of experience like seeing-a-table or tasting-a-pudding, that the new thought-model makes a difference. It is not a theory of the composition of objects, like the atomic theory, but a theory of the coherence of events-of-experience which we call seeing-objects, feeling-objects, etc. It affects our thinking not about objects but about the relation of the whole object-world to God its originator. In particular, as we shall see, it affects our thinking about God's supernatural intervention in the course of humanly-known events.

The Concept of Illusion

Despite these caveats it may be that this thought-model still seems repellently artificial. Does this not amount, we may well ask, to saying that the whole object-world is an illusion? As with many metaphysical objections, the most useful way to understand this question is to discover what we should be thought to deny if we answered in the affirmative.

The trouble is that the question could have more than one meaning. By an illusion we may (and probably do normally) mean 'something that will let you down if you try to treat it as "real" in all respects'. A mirage, a stereoscopic image . . . all illusions are marked by the fact

that there is some respect in which you can be 'let down' by trusting what you see.

Now in this sense we must robustly deny any suggestion that the world of normal objects is an illusion. On the contrary, as we have noted already, our whole notion of illusion has been formed to distinguish certain 'appearances' from normal objects.

If, however, we mean that the whole world of objects ultimately has only dynamic rather than static stability, and could disappear 'in a moment, in the twinkling of an eye', then this is precisely the position that I wish to advance, and it seems to me to represent fairly well the emphasis of Scripture teaching on the subject. I would only add that to call the whole world of objects an 'illusion' on these grounds would be a tendentious misuse of language. The word 'illusion' is so closely linked with the idea of 'that which can safely be dismissed or denied serious attention' that to apply it to daily life would have implications quite contrary to anything I wish to affirm. What we need is not a reduced conception of the reality of matter, but an enhanced conception of the Reality of God.

5. CAUSALITY IN THE NEW THOUGHT-MODEL

Causality in the Object-world

The concept of dynamic stability extends readily to cover causality in the object-world. Like the world of objects, the causal relation that we early learn to recognise between events owes its stability, on our model, to the continuing will of the Giver of those events.¹

For any given event, A, there will in general be many events, B_1, B_2, \dots which we can call the 'cause' of A. I am not now referring to 'complementarity' but to situations in which A depends causally on several events of the same logical kind. Such causes may be ordered serially or in parallel. For example if my vacuum cleaner is running, this is because the current is flowing in the armature, because a generator is revolving in the power station, because. . . . Here each 'cause' is itself the cause of its successor in the series. The causes are serially ordered. We may also say that the motor is running because the connector has been plugged in *and* because the switch has been turned on *and* . . . etc. These 'causes' are logically 'in parallel'.

¹ Gen. viii. 22.

It is important to realise that when we speak of the 'physical cause' of an event A we mean the whole serial-parallel chain-mesh of such events—the total object-situation which scientific experience has shown to entail the event A. Natural science is concerned to discover the pattern of causal relations between object-situations. By definition, it seeks the 'causes' of any object-situation among earlier object-situations, described in object-language.

The ordering of object-situations, past or future, in a causal chain-mesh through the invention of successful principles of ordering called 'natural laws', is the scientist's characteristic task. When according to his principles the chain-mesh of object-situations leading up to a particular event A is complete, he, not unreasonably, resists any attempt to advance some other *object-situation* as the cause of A. Statistical physics has of course weakened this 'single-mindedness' where the data are necessarily too imprecise to define the chain-mesh uniquely. But the basic emphasis remains in principle, if one necessary and sufficient physical cause is known, others should not be sought. Some physical cause, at least in a statistical sense, is expected to exist for any given object-situation. So far as science has gone, it seems to be God's will to give us experience of object-activity for which this attitude is normally justified.

Biblical Concepts of 'Causation'

The Bible throughout sees God as active in events of the object-world. In places it speaks of God's 'causing' the wind to blow, the rain to fall and so forth. Physics on the other hand encourages us to believe that in principle the chain-mesh of object-situations leading up to a rainstorm is complete. 'All vacancies for causes are filled, thank you.' Is the Biblical view then outdated? Or must we hope that one day the physicist will discover a tiny vacancy in his pattern that was not filled, and that he cannot fill?

Most of us, I suppose, would refuse to accept this way of putting the question, which leaves out of account the third obvious possibility, that the Bible does not here mean by 'cause' what the physicist does. Aristotle, we remember, distinguished four uses of the term. The 'cause' of an earthenware pot might be, roughly speaking, the potter's activity, the clay that gives body to the form he moulds, the pattern or form in his mind, or the final purpose for which the pot is being made. Only the first of these senses resembles the physicist's normal use of the term.

Our thought-model, however, is very different from Aristotle's, and I think it suggests directly an interpretation of the Biblical doctrine which need not lead us into his difficult metaphysics. From our present standpoint we should describe God not as the *cause* but as the *originator* or *giver* of the events attributed to Him by the Psalmist. The distinction is clear. A 'cause' in the physical sense is necessarily an object-situation: something in and of the *picture* (to go back to our television analogy). We look within the picture for the causes of events in and of the picture. We look within the object-world for the causes of events in and of the object-world. God, however, is not an object alongside other objects; He is the originator of the whole flood of events of experience which we apprehend as our encounter with His world of objects. What the Psalmist wants us to understand, when he says that God causes the rain to fall, is doubtless true. But if we are trying to be metaphysically precise (which the Biblical writers for good reasons were not) we should, I think, translate it by saying that God *originates* the rainfall, or even that the rainfall (and the activity of the object-world in general) is God's activity. To say that object-situation A *caused* event B does not contradict, but *complements* (if it is true) the assertion that God *originated* B. Always a 'cause', if there is any, is within the picture—the object-world. But the *originator* is neither inside nor outside the picture, or He is both inside and outside the picture. . . . We have then in our thought-model, not indeed an explanation, but perhaps one helpful way of thinking of the Immanence and Transcendence of God. If the dichotomy of 'inside/outside' must be used at all, it were perhaps more sensible to say that it is the picture that is in the Originator, rather than the Originator in (or outside) the picture. '*In Him we live and move and have our being.*'

Human Activity

'In Him we live. . . .' Yes, we have rather been forgetting ourselves. For it is the world not only of chairs and suet puddings, but also of our own human bodies, to which we have attributed this dynamic stability. How are we, the knowing subject-agents, related to those bodies? The nature of the link between mental activity and bodily movements deserves a paper to itself, and we can here bring out only a few leading thoughts connected with our general theme.

In the first place it is clear that we as knowing *subjects* cannot form part of the object-world. Our bodies do; but the 'I' known to each of

us in what the philosopher calls self-consciousness (the I in 'I know' . . .) is not known as an object, by the activity of observation, not even by 'self-observation' as we call it. As Lamont points out in his profoundly stimulating book, *Christ and the World of Thought*, self-observation could lead only to an infinite regress of myself-observing-myself-observing-myself-observing-myself. . . . There is a fundamental difference between the sense in which I 'know' that my heart is beating and the sense in which I 'know' my own desires. My heart-beat I must observe. But merely to possess a desire is to know it. I do not have to observe myself desiring. If I try to do so I achieve as a result, not a knowledge of my desire, but a knowledge of the confused state of mind one gets into through mistaking self-knowledge for self-observation.

Since I as subject am not part of the object-world, it is logically improper to seek to find a place in its causal chain-mesh for such events as my decisions. So here we face a second verbal dilemma. It is traditional to say that when I decide to press a button I 'cause' my finger to move—or even to say that my decision is the 'cause' of the movement of my finger. Yet the physiologist jealously guards his pitifully incomplete causal chain-mesh against the insertion into it of any such factors; and I believe he is right to do so. Where then does my decision come in?

Here again our thought-model suggests an answer. My decision is an event of my experience for which I am responsible. God has given me the power to respond in this way to His continual giving, by continual adaptive decisions of my own. Adding my decision to the total pattern naturally makes the corresponding object-situation different from what it would otherwise have been. Yet since the object-situation has the logical relation to the pattern-of-events-of-experience not of an effect but of an interpretation,* my decision cannot properly be said to be its *cause*. We have here another example of true complementarity, between my personal description in terms of decision, and the physiologist's description in terms of causal links between processes in my brain. The relation of my decision to the movement of my finger is certainly one of *necessity*. But it is not one of causality. In the same sense in which we have used the terms before, I *originate* movements of my body, but it is not proper to say that I cause them.

* See footnote 1, p. 80.

Non-causal Entailment

The distinction between causal and other forms of necessity may sound sufficiently unfamiliar to merit a simple illustration. When we read a message sent by a flashing morse lamp, the flashes of the lamp are certainly necessary for the appearance of the message. They *cause* activity in the retina of our eye, which in turn causes the whole pattern of brain-activity without which there would be no reading-of-the-message. But it does not strictly make sense to say that they cause either the message, or any change in the message should such be made. It is necessary that the pattern of light-flashes should change if the message is to change. But the change in their pattern does not (except in a loose sense) *cause* a change in the message: it *represents* a change in the message. The change in the message is an *interpretation* not an *effect* of the change in the pattern of flashes.

Statements of the form 'unless A were so, B could not be so' must therefore be carefully studied before we conclude that A is even a candidate for inclusion among the causes of B. In particular where B has the logical status of an *interpretation* of A (as the message is our interpretation of the flashing light-pattern, or as the object-world is our interpretation¹ of the events-of-experience) it seems more proper to speak of changes in A as *mediating* rather than '*causing*' changes in B. We thus eschew any talk of two sets of *events*, the 'material' and the 'mental', with causal links between them. The world is one. There is but one set of events with two (or indeed more) interpretations, between which the relationship is not symmetrical, but is certainly not 'causal' in the scientific sense.

Supernatural Activity

I must now at last indicate more explicitly in a few words the relevance of this thought-model to the idea of the 'supernatural', though it is to be hoped that the broad lines of application are clear.

Natural activity in the world of objects finds a place as the expression of God's normal creative pattern for us. Whenever His drama has reached a point at which a new feature must be introduced for the sake of the overall pattern, it is not surprising nor unreasonable that our scientific expectations based on the normal programme should be upset. Supernatural events, then, in the object-world, are events which signify

¹ See footnote 1, p. 80.

a new or unusual phase in the programme. They are never to be thought of as irrational. But their full rationality could become apparent only in terms of the total drama, and can be realised by us now only insofar as God has been pleased to reveal His purposes to us. The continuity of normal experience we have already found on our thought-model to reflect the stability of God's Will. The 'discontinuity' of true miracles, as viewed in terms of the object-world, we now see to reflect no less the stability of the same Will of God, since they have taken place in fulfilment of the same eternal purpose.

It follows from this that even the most scientifically surprising miracles might be expected to show a 'family resemblance' in some respects to God's more usual pattern of activity. The character revealed in God's miracles (as distinct from mere 'magic') is essentially the same as the character revealed in His day-to-day dealings with us. Not that to our sinful minds this offers an infallible criterion of genuine miracle; but for all who know Him personally it adds cumulative reassurance to the conviction of faith.

The End of the World

Presumably from the scientific standpoint the most dramatic supernatural event in the world-picture of Christian Revelation would be the end of the world, when 'the heavens shall be folded up as a garment,' and 'we shall all be changed'. It was this among other considerations that first led to the present thought-model, and it brings out perhaps most clearly the difference made by thinking of the object-world in terms of dynamic stability. If we ask what kind of task God would have in winding up the natural order, materialism would answer in terms of a wholesale removal-operation. Idealism would regard it as a problem of the eradication and replacement of ideas. (Neither might be expected to be unduly hospitable to the possibility.) From our present standpoint, we should think of it as a matter of a total change of the pattern of events mediating the object world, having as its 'interpretation' in object-language a wholesale removal-operation, and at the same time amounting from the subjective standpoint to the eradication and replacement of the corresponding system of ideas of material objects. Only that which has acquired eternal status—the pattern of our eternally-significant choices made in positive response to God—will ultimately survive. . . . But a more detailed discussion of eschatology is certainly not within our present province.

6. TOWARDS A SYNTHESIS

The Doctrine of Creation

We may now see how the 'realist' emphasis of Genesis i fits harmoniously with the 'idealist' emphasis of later teaching. If we are at all to think of God in the language of the world of objects, then of course in object-language these objects are other than, and distinct from, God. If we ask what form the 'projection' of God in the object-world would take, the answer of Christian Revelation lies in the Person of Jesus Christ. Is this perhaps a clue to the mysterious Christian doctrine that Christ was and is in some sense the Agent of Creation?¹ If God is ever to be manifest in the object-world it must be as Jesus Christ. Christ on earth we are then led to think of as the complete projection of the Being of God in the three-dimensional world of objects.

Yet when we use our more comprehensive thought-model, we find no contradiction in the assertion that our whole experience-of-the object-world is continually being given by God, and depends on the moment-by-moment 'upholding' of God. The world of objects in terms of which we apprehend experience has of course a past, which it is the scientist's province to infer. The world of objects *was* created, long before our time. The flux of experience *is being* created and maintained continuously by God.

God is thus transcendent over the world of objects, but He is immanent in the events of experience. To both He stands in the relation of Creator. Our thought-model does not however suggest that He *first* created the world of objects and *then* began the continuous process of creating events-of-experience. These are each complementary ways of describing one and the same 'multidimensional' creative relationship to the world of our experience. It is His continual creation of events-of-experience that I apprehend as my active encounter with a past-created world of objects.

Divine Sovereignty and our Responsibility

We have already seen that our decisions may be regarded as our responsive contribution to the total pattern of events-of-experience.

¹ Col. i. 12-20; John i. 3; Heb. i. 2, 3.

It is a fact of experience that when I decide-to-move-my-finger, my finger (an object among the objects of the world) normally moves. In terms of the object world there is doubtless a concomitant causal chain-mesh of object-situations in my brain leading up to the movement of my finger. But the question of the 'freedom' of my decision is not, I suggest, to be settled by asking how complete was the causal chain-mesh, since, as we saw earlier, my decision does not in any case form part of the chain. The causal chain-mesh picture is rather an interpretation of the pattern of events of experience of which my decision was a part.

How then are we to decide whether my decision was free? I have discussed this in another paper¹ and must here be brief. Let us suppose that I am about to choose one of two alternatives A and B. You, the reader, have been granted complete and continuous knowledge of all the processes of my brain and the external forces acting on it, and from this you deduce that I am about to choose A. Suppose now that you were to try to persuade me of the truth of your prediction, and suggest that as my brain is physically determinate I am not free to choose otherwise. Obviously in any case in which I should normally call myself 'free to choose', it is a fact of experience that I can falsify your prediction if I wish; and no matter how physically-determinate my brain may be you would never be able to allow successfully for the effects of your telling me your prediction (as long as you want to persuade me into accepting the revised version), since I shall always be one jump ahead of you in the game. Nor is this liberty of mine confined to cases in which you actually interfere with me by offering the prediction. For suppose that you silently make a prediction which (by hypothesis) will be successful if you remain silent. Oddly enough, it is still impossible to claim that what you believe is 'the real truth'; because you would be the first to agree that *I* at least would be *wrong* to believe it (since my believing it would render it out-of-date); whereas if it were 'the truth' I would (by definition) be *right* to believe it and *wrong* to *disbelieve* it. I do not in this case dispute that *you* are right to believe what you do; but a necessary condition of its validity for you is that I should not believe it, but must believe something else—namely, that I have a decision to make which is as yet logically indeterminate.² A decision is an event about which neither the agent nor

¹ D. M. Mackay, 'Brain and Will', *Faith and Thought*, 90, 103-115, 1958.

² D. M. Mackay, 'On the Logical Indeterminacy of a Free Choice', *Mind*, 69, 31-40, 1960.

the outside observer can know 'the whole truth', until it has been made.

'Freedom of choice' then, I suggest, is clearly something which all of us possess in (I think) all the choices that we ourselves should wish to regard as 'free'. It is completely unaffected by any doctrine of the physical determinacy of our brains, however much or little ground there may be for such a doctrine.

But now we raise our eyes from the mundane level of physical causality and come face to face with the great doctrine of Divine Sovereignty. How can we find room for this and human responsibility in the same thought-model?

Let us try to pose the problem in Biblical terms. The 'unconverted man is faced with a choice: 'Whosoever will, let him come.' 'Enter in at the strait gate.' Yet if he accepts the invitation and enters, he finds written over the inside of the same strait gate: 'Elect according to the foreknowledge of God.' 'Whom He called, them He did predestinate. . . .' Is it true then, before he has chosen, that he is already predestined to decide in this way?

If the dilemma were merely an intellectual deduction from texts, he might well be tempted to dismiss one or the other doctrine as unintelligible. But it is not in fact like that. For surely each of us who has pledged himself to Christ knows in his own experience that both doctrines in fact 'ring true'. Our choice when we faced it was as clearly ours alone as any choice we have ever made. We knew that if we rejected Christ, the full responsibility was ours, for we knew as an immediate fact that both alternatives were open to us, as real and indubitable as toothache. Yet on looking back, is it not God's initiative in the matter that overwhelms every other feature of the picture? Do we not find that it is actually truest to our immediately-known experience to fall on our knees and thank God for *giving* us the grace to repent and choose aright?

So this is not, at bottom, a problem of reconciling two Scriptural propositions. It is a question of doing propositional justice to two facts of Christian experience. No mere logic-chopping can satisfy us here. What we want is a thought-model which does sufficient justice to the doctrine of God and to Christian experience to make *both* propositions seem natural expressions of different aspects of the total situation. To put it in another way—we want a thought-model in terms of which both the doctrines of God's sovereignty and of man's responsibility, can be expressed without contradictory implications.

I say 'implications' because, of course, theology has been full of attempts to harmonise the two doctrines, which avoid contradiction by merely refraining from *pursuing* awkward implications. Frequently this is even excused by saying 'here human logic fails; this is a deduction we have no right to draw. *Credo quia impossibile.*'

This, I suggest, is not good enough. Logic is essentially the art of detecting falsehood, rather than of deducing truth. This much we may grant, and indeed, assert. But where an apparently logical conclusion does not follow from true premises, logic is bound in duty to the God of truth to give a logical reason for this. It is not as often remembered as it should be that all logical deductions are tautologously implicit in their premises, so that to assert a proposition *is* to assert all logical deductions from it. Only by showing why an apparent conclusion is not a valid deduction can we contract out of the obligation to face it.

Thus fortified, let us see whether our present thought-model might help with the age-old problem. Most bluntly expressed, we have to harmonise the earlier assertion: 'My choice is free' with the later assertion: 'My choice was predestined.' The first gives true expression to experience before choice is made. The second, at least for the Christian whose answer has been 'yes', gives true expression to experience after the choice has been made.

Two Standpoints

It is of fundamental significance that the two statements are made from two different standpoints. For one, the decision is in prospect; for the other, in retrospect. Scripture never says, nor even encourages us to say, 'My decision *is* predestined'. Indeed to say so of a normal open choice is simply false, if it is taken to imply that there exists at this moment a prediction of my choice which I could not falsify at will if told of it; or else, in view of this, it must be to say something which does not deny that my choice is 'free', in the sense in which we have defined the term—the sense with which we normally associate moral responsibility.

How then do we view such a choice on our present thought-model? In the flood of events of experience I meet a challenge to a decision. Unlike all my ordinary decisions, this is not primarily a choice between alternatives conceived and expressed in terms of the object-world. It is a choice between two kinds of relationship with the giver of the whole flux of experience. If we try to depict this situation in ultimate

terms, we have to see it entirely as a pattern of God's activity. This we cannot of course achieve except by analogy; but it is only from the logical standpoint of this view that the concepts of predestination are defined.

Since on the other hand I am aware that I have to *act* in the situation—that there is a choice confronting me—by this fact the foregoing picture is meantime precluded from having meaning for me. I am not satisfying the right logical requirements. My logical standpoint is that of the agent, from which the decision is seen as something which I must contribute to the pattern of events, and for which the concepts of choice and responsibility are defined. In the only frame of reference that applies to my situation, the decision is mine to make, and mine alone. As soon, however, as the choice has been made, the whole process becomes part of my (determinate) past, and I can seek in obedience to revelation to contemplate it from the other standpoint, from which Faith sees all to have been 'of Grace'.

7. CONCLUSION

This is but the merest indication of the kind of synthesis that seems possible with the present thought-model, but it may suffice to open up discussion, which is the purpose of the present paper. I would end with a word of warning.

Because we have been concerned almost exclusively with the object-world of science and its relation to the individual agent, we have left unconsidered the major sphere of Divine activity as Scripture portrays it, in the community of God's people and among the unredeemed. Merely to mention such topics as worship, the Church, the ministry of the Word and sacraments, and the upbuilding of the fellowship in love, will suffice to show how small an area of God's Activity has been covered by our title.

It may be well to emphasise also that our thought-model is explicitly designed to make no difference whatsoever to our 'common-sense' reliance on physical causality in all practical matters of daily life, as well as in science itself. Its purpose has been only to illuminate the Biblical grounds for this reliance. True, it suggests that there is no reason, other than the Will of God, why the whole object-world should not pack up over-night. But in practice, as even anyone who learns to trust his life to air-transport discovers, it makes remarkably little difference to your planning and acting if your possible demise is

totally unpredictable; and there is nothing haphazard in our dependence on God's creative power, for literally *nothing* is more trustworthy. No decision can rationally be affected by this dependence, except in the general sense that at all times we must be 'ready'. And where have we heard *this* emphasis before?

No. The expectations on which natural science and daily life are founded remain as strong and sure as ever they had a right to be, if we pursue our suggested line of thought far enough. The only difference is that the rock on which it would found such expectations is not the brute permanence of objects, nor the ghostly unchangeableness of ideas, but the personal faithfulness of the Living God.