Faith and Thought

A Journal devoted to the study of the inter-relation
of the Christian revelation and modern research

Vol. 95 Number 1 Spring, 1966

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Teleology and the Causal Nexus[1]

1. *Introduction*

THE idea of cause-and-effect is presumably as old as conceptual thought; but it is to Aristotle that we must look for the origin of those metaphysical ideas which underlie the title of this paper, and which are a source of tension in many religious minds today.

It was Aristotle who formulated the famous doctrine of the four causes. Generalizing from what he had observed as processes occur, or objects take shape, in the hands of the artificer, or under the chisel of the sculptor, he postulated that every event and object was the consequence of four factors, which he named the material cause (the matter involved), the efficient cause (the hand, tool, or other object, which appears to produce, on the matter, the effect concerned), the formal cause (the image, or 'blue-print', in the controlling mind), and the final cause (the purpose or goal towards which that mind is working). When this doctrine was applied to human activities and mundane events, it was usually possible to distinguish, although not necessarily to specify, the four causes; but when it was applied to the universe as a whole, three of the four causes tended to coalesce as all being divine activity. Thus the Supreme Mind was, at the same time, Efficient, Formal, and Final Cause; leaving only the material cause as a separate factor.

Aquinas, who christianized Aristotle's metaphysics, completed the coalescence, and viewed the universe as being the product of the material cause, matter, and the Final Cause, God. To him, matter (*prima materia*) was incomprehensible because unobservable. The only observable things were

[1] Originally given at the Annual General Meeting, May, 1962.

objects, in which this basic stuff, *prima materia*, had been given different 'forms': the form of a stone, the form of a metal, the form of a plant, *etc.* What the natural philosopher studied, therefore, was, not just matter, but 'formalized' matter, matter given specific form, and possibly subjected to specific change, in order that it might fulfil the purposes of God, the Final Cause.

As science developed, the idea that God is continuously imparting 'form' to matter was gradually dropped, and material objects and events came to be regarded as the effects of the material cause alone. This is well illustrated by the fact that what Aquinas would have regarded as the properties of the 'form' imparted by God we today call 'the properties of matter'. Thus, in science, 'cause' became restricted to 'material cause', and God, as Final Cause, was forgotten. When, as sometimes happened, God was retained in the thought of the scientist, He was more often than not, merely a deistic God, a First Cause, who wound up the clockwork of the universe at the first moment of time and has allowed it to tick unmolested ever since. This is a far cry from the theistic Final Cause who is continuously guiding events that they might fulfil His purposes.

Although natural science has found it convenient to ignore the ultimate Final Cause, final causes cannot be ignored in other disciplines. In the arts the questions of the artist's aim, and of his success in achieving that aim, have continually to be asked; and in ethics the moral value of human aims has to be assessed. In theology this assessment is made in the light of the will of God, the Final Cause, 'who worketh all things after the counsel of his own will'[1].

It is this study of aims or final causes, whether in human or animal behaviour or in the universe as a whole, which constitutes teleology.

Thus there has developed a dichotomy in Western thought: on the one hand we have the scientific interpretation of the universe in terms of material causes; and, on the other, the theological interpretation which relates everything to the

[1] Ephesians i, 11.

Final Cause. The problem of many today is how to reconcile these two, mechanistic and teleological, interpretations.

I suggest that much of our present difficulty is due to our holding a wrong balance between the two. Christian thought has been so influenced by its contemporary materialistic environment that it has failed to give due weight to biblical emphases. Starting from unscriptural presuppositions, it has, in fact, developed a metaphysic which it now finds itself unable to reconcile with clear biblical teaching. This paper will firstly survey current and traditional thought on causality, secondly pin-point some of the problems raised thereby, and thirdly attempt to show that, by starting from biblical concepts, it is possible to develop a metaphysic which reconciles both theological and causal thought.

It will, no doubt, be apparent to any theologian or philosopher that this presentation is not the work of a professional colleague. It is rather an attempt by a working scientist, who has found traditional Christian metaphysics incommensurate with modern knowledge, to postulate a more satisfactory thought-model. The full implications, theological and philosophical, of the model have not been worked out; and, if and when they are, this model will probably also be found wanting. But if this paper stimulates some better qualified Christian thinker to take up the problem, and either develop or refute the concepts expressed herein, it will have achieved a useful purpose.

2. *The Causal Nexus*

The idea of the causal nexus has developed, by a process of refinement, from the commonsense view of causation, which is that a cause *produces* an effect: that is, that, in some sense, the cause is active, while the effect is passive and follows inevitably. Examples of the commonsense notion are: the impact of a moving billiard ball causing a stationary one to move; the friction of a match on the side of the matchbox causing the match to ignite; the fertilization of an egg causing the development of an embryo.

Yet a little thought soon reveals the shortcomings of this popular notion. Firstly, in none of the above examples is the effect any less active than the cause. The rolling of the struck ball, the combustion of the match, and the development of the embryo are physical, chemical, or physiological processes involving energy changes, just as their causes are. In fact, the concept of passivity is probably meaningless outside the context of volition.

Secondly, the effect, in the popular sense, is not inevitable. The struck ball might have been glued to the table; the match might have been wet; the embryo might have been poisoned; and the above effects would not have occurred. This sort of thing is common experience; but it is not allowed to destroy the notion of inevitability of effect, which can always be protected by invoking the idea of 'right conditions'. Thus the effect is envisaged as inevitably following the cause provided the right conditions prevail: *e.g.*, a match will necessarily burn when struck, provided that it is dry, that oxygen is present, that it has not been struck before, that it is struck with sufficient force, *etc.* (It is impossible to specify all that that *etcetera* embraces.)

But to divide these necessary factors into cause and right conditions is clearly illogical, for there is nothing to distinguish the one from the others. It is just as reasonable to designate the presence of oxygen as the cause and the friction, dryness, *etc.*, as right conditions as it is to designate the friction as the cause and the presence of oxygen, absence of water, *etc.*, as the right conditions. An effect, in the popular sense, then, is the consequence of the presence of a large number of necessary conditions, and cannot be related to one cause.

Yet the idea of the cause-effect relation persists as a fundamental presupposition of science. The scientist realizes that both cause and effect, in the everyday sense, are complexes of many factors, and it is his conviction that if he could simplify them sufficiently he would be able to find one factor A in the cause-complex and one factor B in the effect-complex which vary concomitantly: that is, whenever A is present so is B, and whenever A is absent so is B. Or, to put it another way, if A is present so is B, and if B is present so is A. The relation

between *A* and *B* is therefore symmetrical except that *A* always precedes *B*. *A* is designated the cause, and *B* the effect. A cause, in the scientific sense, then, may be defined as the *sufficient and necessary condition* of an effect. In order, therefore, to retain in use the concept of cause-and-effect, it has become necessary to refine the popular notion that, in some mechanistic way, a cause *produces* its effect; and it has become reduced to the idea that one simple factor *A* is inevitably followed by another, *B*. It is merely a convention that makes us regard *A* as producing *B*. It is just as logical to regard *B* as producing *A*, or to regard both *A* and *B* as produced by an unknown factor *C*. In fact, to be perfectly honest, all we can say is that, in our very limited experience, *A* has always been followed by *B*; and that we assume that it always will be; and, further, that we know no reason why it should be. Now it is this allegedly-inevitable *A–B* relation which has been called the 'causal nexus'.

It is a fundamental presupposition of science that the causal nexus is uniform throughout time and space. (In classical science all observations support this: but it is interesting to note that in modern sub-atomic physics [*e.g.*, radio-activity], where the principle of uniformity appears not to apply, it is orthodox to deny the causal nexus rather than admit its non-uniformity.) There are, however, no *a priori* grounds upon which the uniformity of the causal nexus can be established: the only philosophical basis for it is the *a posteriori* one that the principle works in practice.

3. Causality in Traditional Metaphysics

I think there is no doubt that, in the minds of scientists today, almost without exception, causality is the fundamental feature of the universe. The very *modus operandi* of nature is by the causal nexus; and therefore, whatever other descriptions may be validly given, a mechanistic description approaches nearest to basic truth. This attitude, first developed by physicists, has spread through the ranks of biologists, psychologists, sociolo-

gists, economists, and others, who, though readily admitting that their causal sequences cannot be so accurately determined as can those of the physicists, nevertheless accept the idea of the fundamentality of causation in their fields of investigation.

That scientists, and others who try to make their work as empirical as possible, should accept this idea is perhaps not surprising. But what is surprising is that much traditional theology appears to rest upon the same assumption.

Although Christian theism has always emphasized the primary causality (metaphysical causality) of God, it has usually regarded God as working within the created order through secondary causes (physical causality) recognizable by man. As E. L. Mascall says, 'The main tradition of classical Christian philosophy, while it insisted upon the universal primary causality of God in all the events of the world's history, maintained with equal emphasis the reality and the authenticity of secondary causes, both necessary and voluntary. . . . It is well known that intractable problems arise in the reconciliation of divine omnipotence with the reality of secondary causes, especially when the secondary causes are voluntary ones and when the discussion is extended from the realm of nature to that of grace . . . We are not concerned with its details here, but only with the fact that, whatever problems this raises for the intellect, the main tradition of Christian theism has firmly held that, in their different modes of primary and secondary causality respectively, both God and created agents are active in all the processes of nature'[1].

The cosmological argument of Natural Theology is an argument from causality. Originated by Plato, developed by Aristotle, incorporated in Natural Theology by Aquinas, and restated in many ways ever since, this argument starts from the idea of the universality of causation and reasons to the existence of God, either as the Unmoved Mover (in the present) or as the Uncaused Cause (in the past).

Even the teleological argument, formulated by Aquinas and elaborated by Paley, is, despite its name, a causal argument.

[1] E. L. Mascall, *Christian Theology and Natural Science*, Bampton Lectures 1956, Longmans.

It starts from the concept of design in nature and concludes that the Designer must exist. But the only ground upon which design can be recognized is the assumption of causality. If God chose to operate in nature without using causation (*i.e.*, in a non-uniform manner) no design could be discovered; and it is the assumption that a Designer could achieve His purposes only through causation that gives to the orderliness of nature its alleged metaphysical implications.

But perhaps the clearest indication of traditional ideas is afforded by discussions of miracles. From Aquinas to the present day (*e.g.*, C. S. Lewis) the prevailing idea of miracle is that it is an interruption of normal causation by the power of God, a supernatural intervention in the realm of nature. Aquinas viewed a miracle as a suspension of the normal working of nature, the making of an adjustment, and the restarting of normal causation. Lewis[1] sees it as the feeding of a new factor into the normal machinery. Other models have been employed; but the basic assumption in them all is the fundamentality of causation. Except for the miraculous events, the universe is continually maintained by causal mechanisms.

Now this traditional metaphysic raises serious problems, as Mascall points out in the passage previously quoted. Perhaps the biggest is that of human responsibility: why should God judge a man for his actions if his behaviour is causally determined by the interaction of his genes and his environment? Or why should we congratulate a successful man, or respect a man of moral integrity? It also raises the question why an omniscient and omnipotent God, in planning the universe to operate causally, should have left a few situations uncatered for, so that He had to work occasional miracles by 'breaking His own laws'.

These problems have been formulated within the framework of traditional metaphysics. I am aware that some of them may be resolved if we regard causality, not as a metaphysical principle, but as a methodological one, and by distinguishing

[1] C. S. Lewis, *Miracles*. Geoffrey Bles, 1947.

between observer- and actor-language[1]. But if causality is transferred, in this way, from metaphysics to methodology, a gap is left in metaphysics. What thought-model is to be put in its place? How is the metaphysical maintenance of the created order to be envisaged?

In order to attempt a Christian answer to this question I shall start from biblical concepts.

4. The Biblical View of the Universe

The pages of Holy Writ give no indication that their original authors were metaphysicians, or indeed were bothered by the metaphysical problems that concern us today. Their attitude to the universe was essentially naive. Although they must have been aware of secondary causes, they seldom mentioned them[2]. They viewed the universe as being continuously, directly, and immediately under the control of God, with the consequence therefore that material causes were of little significance.

This is well illustrated by the creation narratives of Genesis, which are remarkably free from the grotesque 'causal' sequences of contemporary creation myths. 'In the beginning God created'[3]; 'the Spirit of God brooded'[4]; 'God said, Let there be . . . and it was so'[5]. The New Testament writers adopt the same attitude when they say that He upholds 'all things by the word of His power'[6], or that 'in Him all things hold together'[7]. Paul tells the Athenian philosophers that it is in God that 'we live and move and have our being'[8]. Jesus Himself indicated that God feeds the fowls of the air[9], clothes the grass of the field[10], gives good things to them that ask Him[11], makes His sun to rise on the evil and on the good, and sends rain on the just and on the unjust[12].

[1] See writings of D. M. MacKay, e.g., 'Brain and Will', *Faith and Thought*, 90, pp. 103–115, 1958, and 'Divine Activity in a Scientific World', *Faith and Thought*, 91, pp. 75–96, 1959–60.

[2] There are a few references to casual agents, e.g., the wind, Ex. x, 19., Ex. xiv, 21.

[3] Gen. i, 1. [4] Gen. i, 2. [5] Gen. i, 6–7, etc.

[6] Heb. i, 3. [7] Col. i, 17. [8] Acts xvii, 28.

[9] Matt. vi, 26. [10] Matt. vi, 30. [11] Matt. vii, 11.

[12] Matt. v, 45.

Occasionally, the biblical writers, in order to emphasize the divine control of nature, even deny the existence of secondary causes. Thus Joseph in Egypt is recorded as saying to his brothers, 'It was not you that sent me hither, but God'[1]; Jesus said, 'It is not ye that speak, but the Spirit of your Father which speaketh in you'[2]; and Paul said, 'yet not I, but Christ liveth in me'[3]. Quite clearly these statements are framed in the language of hyperbole, for in each case the context shows that the secondary causes denied are, in fact, operative; but the point of the hyperbole is to stress the direct control of God.

God's control is not only direct and immediate, but it is also teleological. Historical events occur because they fulfil God's moral and spiritual purposes, and the whole of history is working towards the goal which He has fore-ordained. This is clearly the teaching of the Old Testament writers, both historical and prophetic; and it is the basic assumption underlying their interpretation of history. What is true of national history in the Old Testament is, according to the New Testament, also true of the history of the church and its members. Although teleological expressions of God's activity are found on nearly every page of the New Testament, Ephesians i, 3–14 is perhaps the most comprehensive statement of this principle.

It is equally obvious that the biblical writers regarded God's activity as being completely free and unconditioned. The idea that He must act in conformity with fixed laws (even those of His own promulgation) is quite foreign to Scripture. The most obvious regularities of nature are interrupted from time to time: a day is extended[4]; the shadow on a sundial moves in reverse[5]; men walk upon the surface of the lake[6]; and a putrefying body revives[7]. The only factor that determines God's activity is His own pleasure. 'Our God is in the heavens: He hath done whatsoever He hath pleased'[8], says a psalmist; while Paul describes Him as the One Who 'worketh all things after the counsel of His own will'[9].

[1] Gen. xiv, 4–8. [2] Matt. x, 20. [3] Gal. ii, 20.
[4] Joshua x, 13. [5] 2 Kings xx, 11. [6] Matt. xiv, 25 & 29.
[7] Jn. xi, 44. [8] Ps. cxv, 3. [9] Eph. i, 11.

The biblical view, therefore, is that the most fundamental characteristic of the universe is not causality but the direct, unconditioned, control of God, whereby He achieves His own purposes.

But when we speak of God's direct control, there is a danger that we may be merely substituting one 'mechanism' for another (as if God were now 'pushing' an object directly instead of through a system of levers that we call 'causal connexions') If this were so, our new metaphysic would be of little more value than the old. But if God is not 'pushing', what is He doing? I suggest 'speaking'. If there is, throughout Scripture, one expression which symbolizes God's activity, surely it is 'the Word'. It is the Word of God which operates in creation[1], in providence[2], in revelation[3], in redemption[4], in regeneration[5], and in judgment[6].

One significant fact about a word is that it does not 'push', or force a reaction; rather it elicits a response. When the centurion[7] says to this man 'go', and he goeth, and to another 'come', and he cometh, the actions thereby provoked are not forced upon the servants; rather they act as they do because love, or fear, or desire for promotion, gives them the will to obey their superior.

So, whatever may be the nature of God's direct control of inanimate matter, I suggest His control of human affairs is best thought of as speaking, or commanding, and thereby eliciting a response.

If therefore our metaphysic is to be based upon biblical concepts, I believe we must view events as following one another, not because of any fundamental causal necessity, but because God freely chooses to act according to a particular sequence that will accomplish His purposes. The most significant relation, then, between event and event is a teleological one, and not the causal nexus.

[1] Jn. i, 3. [2] Heb. i, 3. [3] Jer. i, 2.
[4] 1 Cor. i, 18 (Gk). [5] 1 Pet. i, 23. [6] Rev. xix, 13.
[7] Matt. viii, 8–9.

5. *Teleology and the Causal Nexus*

One of the traditional problems of Christian philosophy and apologetics is that of the relation between the principle of Uniformity of Nature and those irregularities which constitute one class of miracle (*e.g.*, the resurrection of a putrid body, a man's walking upon the surface of a lake, the multiplication of a few loaves and fishes to feed over five thousand hungry people, and others which clearly violate accepted natural laws). This problem has usually been expressed by posing such questions as: 'Why should God intervene in the normal course of nature?', or 'How can God interrupt His laws?', or 'Why the irregularities?'

If, however, the preceding argument is correct, we have been asking the wrong questions: if God's control is absolutely free, unconditioned, and teleological, the question that we must ask, and answer, is not 'Why the irregularities?' but 'Why the regularities?'. How and when does God use regularities to achieve His ends?

I want to suggest that God chooses to operate regularly (*i.e.*, by causality) only so far as is necessary to provide a framework for human responsibility. Man has been commissioned to subdue the earth and have dominion over the animals. He is expected to think rationally, to co-operate with his fellow man in society, and to communicate his thoughts to others. God holds him responsible for the consequences of his actions, and will one day judge every man according to his works. Now these would all be impossible but for regular causal relations which man himself can discover. So, in order that God might achieve some of His purposes through the agency of responsible human beings, He has seen fit to present to human experience a world in which man can discover sufficient causal regularities to enable him, by faith, to achieve God's will. It is thus a human responsibility to expect causal regularities, to search for them, and to act in accordance with them. This, I suggest, is a Christian *a priori* ground (and probably the only *a priori* ground) for the belief in the uniformity of the causal order, which is the basis of science.

But there is no reason at all why God should choose to act throughout the vast tracts of unobserved time and space in the same regular way as He acts in the limited field of human experience. In fact, even within that limited field He sometimes, on special occasions and for special purposes, acts in an unusual manner, unexpected by human observers. When He does so, the event causes surprise and wonderment, and is described, in New Testament language, as a *teras* (a wonder). It may teach man important truth, and is recognised as a *semeion* (a sign). It is evidence of divine power at work, and may be called a *dunamis* (an act of power).

I end this paper by summarising some of its salient points and drawing some conclusions.

The causal nexus, on analysis, is seen to be nothing more than the fact that certain events have always been found only to follow certain other corresponding events. Neither science nor philosophy can demonstrate any necessity for this relation, but it is normally assumed to be universally operative. The Christian accounts for this regularity by regarding it as God's consistent providential activity. God has no need to act in this manner – and, for all we know, much of His activity in time and space may not be regular – but He has chosen to operate through causality in the limited field of human experience, so that He might achieve His purposes through human responsibility. Thus causal connections are God's will in operation; the causal nexus is a teleological nexus; the material cause and the Final Cause are one. Hence, all four of Aristotle's causes are now seen to coalesce.

The deistic view, so popular last century and still colouring much Christian thinking today, that the universe is a piece of machinery originally set working by the Creator but ever since pursuing its independent course according to its built-in laws, is quite clearly erroneous: in fact, it is idolatrous. It leads to the attitude expressed by Wordsworth's lines,

> To the solid ground of Nature
> Trusts the mind that builds for aye.

This is 'worshipping the creation rather than the Creator'[1], and is nothing but refined paganism.

[1] Rom. i, 25.

The Christian's trust is not in nature but in the God of nature; but as this God is One Who, within human experience, normally acts through causality, the Christian's trust in God will lead to action guided by the regularities which man has discovered and which he summarises as natural laws. Thus a New Testament writer can say 'I will show you my faith by my works', and can emphasise the corollary that 'faith without works is dead'[1]. The faith is in God, but the works are based upon natural laws.

The Christian, then, like the non-christian, will act in conformity with natural laws, and he will not *expect* miracles to occur. Nevertheless, if a miracle does occur, he, unlike the non-christian, will not necessarily be surprised, nor will he feel under an obligation to try to explain it away.

[1] James ii, 18 & 20.