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Some Reflections on the Evolution Controversy

A. INTRODUCTION

Exactly a century has elapsed since the notorious debate at the Oxford meeting of the British Association, when Samuel Wilberforce, on the one side, and Thomas Henry Huxley, on the other, fired the first shots in the great battle over Evolution. During this period the debate has developed along several lines; and has involved, as its constituents, many and varied controversies, scientific, philosophical, and theological.

The scientific aspects of the debate are largely irrelevant to the subject matter of this paper, and, indeed, impertinent to the interests of the Victoria Institute. Suffice it to state here that, although the mechanism of evolution is still an open question, the fact of evolution, and the major features of its course, are now matters of general agreement amongst biologists. The time has come, therefore, when one cannot afford to treat evolution as anything less than a well-established scientific theory.

The gradual acceptance of this theory during the last hundred years has occasioned the philosophical and theological controversies which are the subject of this paper. These controversies are by no means dead. This very weekend, Sir Julian Huxley writes in *The Observer*,[1] 'The Huxley-Wilberforce duel a century ago symbolised the defeat of the idea of special creation by that of biological transformation. Today the entire god-theory is in competition with the extended evolution theory, and its picture of the world and man's destiny is in process of being superseded by the evolutionary vision.' Three years ago, David Lack wrote, 'The modern tendency is to suppose that the conflict lies wholly in the past, though this seems largely because each side fails to appreciate or accept essential claims held by the other.' The book, *Evolutionary Theory and Christian Belief*,[2] in which these words occur, has as its subtitle '*The Unresolved Conflict*'.

[1] J. S. Huxley, 'Science and God', *The Observer Week End Review* (17 July 1960).

[2] Methuen, 1957.

In an earlier paper[1] read to the Institute I discussed certain philosophical principles which relate scientific and theological descriptions of the universe; and it is my purpose in this paper to show that the application of these principles to the evolution conflict does, in fact, go far towards providing a possible resolution.

The various points of contention reviewed below are not in the order of historical sequence but in what appears to be the most logical order for treatment. Where an argument has been reiterated so frequently in the past as to become well known, and even popular, I have deemed it unnecessary to give detailed references to authors who have used it.

B. PHILOSOPHICAL AND THEOLOGICAL CONFLICTS

Evolution and the Concept of Creation

The ideas of evolution and creation have often been regarded as mutually exclusive. This is because 'creation' has been assumed to imply a particular mechanism and time scale, such that God's creatorial activity, in its objective features, resembles the work of a conjurer who produces a rabbit out of thin air. In other words, an imaginary observer describing what he witnessed would do so in terms of an instantaneous displacement, or replacement, of water or air by an organism. This concept of creation is, of course, opposed to the theory of evolution.

It seems clear, however, from a study of the various biblical words (Heb., *bara*, *asah*, *yatzar*; Greek, *poieo*, *ktizo*) used to describe God's creatorial activity and the various Scriptural passages (e.g., Gen. i. 1, Prov. viii. 22-31, John i. 3, Col. i. 16-17, Heb. i. 3, Heb. xi, 3) recounting it, that this concept of creation is by no means a necessary Christian idea. The Biblical view of creation is, I suggest, limited to the facts that God planned the universe, brought it into being, and continually maintains it. As far as I can see, it has nothing to say about either the mechanism or the time scale involved.

If this is true, then science, which is objective and empirical, similarly has nothing to say about creation. Creation and evolution are mutually independent concepts derived, one from faith in a revelation, and the other by the method of science. They are complementary rather than contradictory.

[1] G. E. Barnes, 'Philosophical Principles in the Teaching of Science and Religion', *J. Trans. Vict. Inst.*, **88** (1956), 79-98.

Those who have denied the truth of evolution in order to establish the doctrine of creation have, then, been guilty of an illogicality. The true antithesis of evolution is spontaneous generation, while the correct antithesis of creation is materialism. So the scientific question that must be faced is: which is more in keeping with objective facts, evolution or spontaneous generation? The answer which science gives at the moment is undoubtedly 'evolution'; but whatever the final answer may be, it will be irrelevant to the philosophical question of creation or materialism.

Evolution and Genesis

Of the many problems confronting the Christian Church as a result of the establishment of the theory of evolution, perhaps the most intractable is that of the relation between geological history and the creation narrative in the Book of Genesis.

The difficulty of reconciling the two has led some to reject the Genesis account as of no more worth than ancient Babylonian creation myths; as being a mere 'fairy tale' from the nursery of Middle Eastern civilisation. Others, still rejecting the historicity of the account, nevertheless see in it an allegorical picture of spiritual truth. Others, believing the account to be intended as history, have tried, with various degrees of success, to correlate it with geological history. Yet others, believing the account to be historical, and failing to reconcile it with the scientific account, have rejected, partially or completely, the theory of evolution.

The crux of the debate is the interpretation of Genesis i and ii, and this is influenced very largely by the theological viewpoint of the interpreter. If one shares, as I do, the 'orthodox' view that the Bible (but not any particular recension or version) is, in itself, an inerrant divine revelation, one is bound to regard the creation narrative as, in some sense, historical. Its style is that of a description of events that actually happened; and, in the absence of good Scriptural evidence to the contrary, the passage must be taken at its face value.[1] This view of the narrative raises problems which must be faced, but which can be discussed here only in general principles. (To those who take a more liberal view of the Bible, the narrative presents less difficulty.)

[1] This is not to deny that there is figurative language, e.g. myth, in the narrative; history may be, and often is, written figuratively. But the passage itself must determine what is to be understood figuratively.

One problem concerns the implication of the word translated 'after his kind' in Genesis i. 11, 12, 21 and 24 (A.V.). It has frequently been alleged that this phrase implies identity of parent and offspring, and therefore precludes the possibility of 'descent with modification'. This, however, is a false interpretation of the Hebrew, which would be perhaps better translated 'in all its varieties'. The emphasis of the expression is not to limit the variation of types, but rather the opposite. As Driver[1] says, it 'calls attention to the number and variety of the different species included under each head'. Furthermore, the passages which include the expression are concerned with the origin of species, and not with reproduction or descent within the species.

I use the word 'species' here for convenience, but it should be remembered that the species-concept of today is foreign to the Bible. And even more foreign is the idea of the fixity of species. This idea stemmed from the work of John Ray (seventeenth century) and Linnaeus (eighteenth century), and later became 'read into' the creation narrative by Christian orthodoxy. Thus, when Darwin attacked the fixity of species, many Christians felt obliged to defend it; and so developed one unfortunate, and quite unnecessary, conflict.

Another problem is that of the antiquity of life. According to the formerly widely accepted chronology of Ussher, the events of Genesis took place in the year 4004 B.C.; whereas geologists were estimating the age of life upon the earth in terms of millions, or hundreds of millions, of years.

Now estimates such as that of Ussher were based upon Old Testament genealogies; and, apart from being notoriously unreliable (Angus[2] says that 140 different estimates exist), they must relate, not to the origin of life, but to the time of Adam. Whether or not they indirectly imply anything about the antiquity of life depends upon the correct interpretation of Genesis i. If this chapter covers no more than one week, quite obviously the antiquity of life is asserted to be little more than the antiquity of Adam. But in fact the Hebrew text is sufficiently indefinite to allow various interpretations which do not specify the time scale of creation. Some writers,[3] for example, have seen in the problematic Hebrew construction of verse 2[4] evidence of

[1] S. R. Driver, *The Book of Genesis* (*Westminster Commentaries*), p. 9.

[2] J. Angus, *The Bible Handbook*. Revised edition by S. G. Green, R.T.S.

[3] E.g. H. P. Liddon, *Romans*; Wm Kelly, *In the Beginning*; G. H. Pember, *Earth's Earliest Ages*.

[4] For discussion of this construction, see *J. Trans. Vict. Inst.*, **78** (1946).

an unspecified time lapse between the original creation in verse 1 and the events recorded in the subsequent part of the chapter. Others[1] have argued from the frequent figurative use of the Hebrew word for 'day', that the days described in Genesis were long periods of time, possibly equivalent to geological epochs. Yet others[2] have taken the 'days' to correspond with a series of revelations concerning the creation, rather than the creative events themselves, and thus having no implications concerning the antiquity of life. So I think it would be true to say that geological estimates of life's history upon the earth present no great difficulty to the Christian today.

But there is still another problem: the relation between the order of events detailed in Genesis i and the sequence of life indicated by palaeontology. Many attempts have been made to harmonise the two, particularly by those who regard the days of Genesis i as long eras. Some of the harmonies have been successful, but they are so speculative as to be of little value. The biological categories in the Hebrew of Genesis i bear no relation to the biological categories of the modern scientist. The Hebrew employs such categories as 'sprouting things', 'trees', 'swarming animals', 'flying animals', 'animals capable of domestication', 'creeping animals', 'monsters'; and, if one identifies these categories with particular taxonomic groups in order to harmonise Genesis and geology, one is clearly reading into the creation narrative more (or less) than is really there.

It has often been said—and as often forgotten—that it is not the function of the Bible to teach science. It is rather a revelation, to faith, of spiritual truths which man could not ascertain for himself. For the purpose of this revelation it sometimes makes assertions about events which science is competent to describe; but when it does so, the descriptions it gives are different from those which science gives. And one must not expect to be able to argue from one type of description to the other. Genesis i is no exception.

An analogy will perhaps make plain the sort of attitude which I suggest one ought to adopt towards the creation narrative. A well-known economist is commissioned by a government department to make an extended tour of Africa, in order to report on certain economic

[1] E.g. Hugh Miller, J. W. Dawson, James Dana (amongst geologists). Various hebraists and theologians (e.g. S. R. Driver) have regarded this interpretation as possible; while some writers have claimed support for this view in the *dies ineffabiles* of Augustine.

[2] E.g. P. J. Wiseman, *Creation Revealed in Six Days.*

problems in that continent. On his return to this country, he is met at the airport by a television interviewer, who requests him to tell his unseen audience something of his impressions of Africa. Of all that has happened to him on his journeys, he selects one or two events, and one or two colourful personalities he has met, and describes them in everyday language, in order to make a few salient points of particular interest to the general public. His remarks at the airport, however, bear little resemblance to the official, technical, report he later presents to the government department. This contains a detailed itinerary, and a mass of objective facts and figures; and is of little interest to the 'man in the street'. Now the scientific account of the origins of life and species is like the technical report; it consists of a wealth of objective facts, presented in technical jargon, and means little or nothing to the majority of mankind. The creation narrative, however, is akin to the traveller's impressions: it is factual; but the historical events mentioned are just a few, selected from millions of years of history, and recounted in everyday language, so as to appeal to all men at all times. Furthermore, the actual selection of events has been determined by the need to illustrate a few salient, and all-important, spiritual truths, that are the concern of all mankind.

In the above analogy, it would be folly to insist upon a 'harmony' of the television account and the technical report. I suggest it is equally unprofitable to attempt a harmony of Genesis and geology. Yet Christians have so often become so absorbed in this attempt, that they have forgotten to ask the right sorts of questions about the opening chapters of the Bible; chapters which, in the style of simple word-pictures from pre-history, convey the fundamental spiritual truths of the relations of God to nature, God to man, man to nature, husband to wife, the Tempter to man, and others.

Evolution and the Nature of Man

The similarities between man and animals have been recognised throughout the whole period of church history, without causing any concern to those who would maintain a Christian view of the nature of man. Aristotle's classification of animals, which was in use until the seventeenth century, included man in the *genus*, hairy viviparous quadrupeds; John Ray's classification, which superseded Aristotle's in the seventeenth century, included man in the Anthropomorpha; and Linnaeus, in the eighteenth century, placed man in the order Primates in

the class Mammalia, an arrangement still in use today. The similarities upon which these classifications were based were, however, always regarded as, in a sense, coincidental. Essentially man was different from the beasts in being 'in God's image'; but God, in making him from the dust of the ground, independently of animals, had seen fit, in His sovereign wisdom, to give man certain physical resemblances to what were regarded as 'the lower creation'.

Now the theory of evolution explained these similarities as being due not to coincidence, but to essential continuity between man and the beasts, within the animal kingdom; and this appeared, to many Christians, to challenge the Biblical view of man. How, they asked, could a being derived by descent from animals be also a unique creation in God's image?

In an earlier[1] paper I argued that scientific similarity did not necessarily entail similarity of value or significance, but here it is needful to go further and point out that even scientific continuity implies no equality of value. There is, for example, scientific continuity between the oil colours smeared upon the palette in an artist's hand and the oils distributed on the canvas in front of him. One could say that the oil-painting was 'evolved' from the smear on the palette by the operation of forces exerted by the palette knife. There is complete continuity here; but the picture is a new creation, and may be a masterpiece of art: the oil-smeared palette, on the other hand, is of no significance, except as a means to an end. And so with man: if science should provide adequate evidence that he is, like the animals, a product of evolution, this is no ground for denying that he is also a being of unique spiritual value. Various Biblical passages[2] affirm man's continuity with 'the dust': the theory of evolution merely adds an intermediate stage (to produce the sequence: dust, animals, man). If man's continuity with the dust is not incompatible with a spiritual view of man, surely his continuity with animals is no hindrance to this view. In fact, I suggest it is Scriptural to regard man as being linked with both the animals and God; with the animals by way of his organismal features (Heb. *Nephesh*), and with God via his spiritual nature (Heb. *Ruach*).[3]

The Christian view of man is that he is, not only a spiritual creature, but also a sinful creature; that the lack of harmony, within both

[1] G. E. Barnes, op. cit.

[2] Gen. ii. 7, Gen. iii. 19, Job xxxiv. 15, Ps. ciii. 14, Eccles. xii. 7.

[3] For fuller discussion see G. E. Barnes, 'The Nature of Man', *Christian Graduate*, 4, 2 (1951).

individual and society, is a consequence of a faulty relation to God; a state of rebellion, in fact. With the general acceptance of the theory of evolution, an alternative explanation became possible. Human anti-social behaviour was regarded by many as the relic of animal behaviour in our ancestry. It was not that man had fallen, but that he had not risen high enough. Sin was not a spiritual perversion but an unfortunate hereditary behaviour pattern.

It is, of course, very asy to find close similarities between human and animal behaviour. This is not surprising, since human beings, as organisms, have basic needs similar to those of animals (food, territory, self-protection, a mate, etc.); and the satisfaction of those needs involves sometimes co-operation, and sometimes competition, in the community; and sometimes tension within the individual; just as it does amongst animals.

But, as has already been stated, scientific similarity does not imply spiritual equivalence. Two animals may fight over one mate and, as far as we know, be quite unaware of any moral issues involved; when humans do the same, they know that their behaviour requires an ethical appraisal. The ethical *codes* by which they judge behaviour vary with their philosophy, religion, and social environment; but an ethical *sense* appears to be universal amongst men. Everywhere the concepts 'I ought' and 'I ought not' find expression.

As long as man is aware of this responsibility, the possibility remains that anti-social behaviour is correctly described as sin. For sin, in the Christian sense, is not assessed by the objective features of behaviour, but by man's mental attitude to what he can ascertain to be right or wrong. And this, in turn, depends upon man's relation to God. But it has already been pointed out that man's continuity with the animals in no way excludes a spiritual view of man, as a being capable of knowing God. If he is capable of knowing God, he is capable of knowing God's will; and if he is capable of knowing God's will, he is also capable of defying God's will. Man, then, may still be regarded as a sinner; but his sin is not a necessity imposed by his link with animals, but a potentiality involved in his link with God.

Evolution and the Character of God

The view that evolution is to be regarded as the working out of God's creatorial plan has been challenged on the ground that certain features of evolution are allegedly incompatible with the character of God. It

is said, for example, that the randomness of evolution, accompanied, as it is, by extinction of numerous individuals and races, is wasteful, and cannot be regarded as consistent with control by an all-wise and omnipotent God. Or, it is said, the concepts of struggle for existence, and natural selection, paint a picture of 'nature red in tooth and claw', which is inconsistent with a God of love.

The first of these alleged incompatibilities has been dealt with in detail in a recent paper[1] read before this Institute. It was there pointed out that a series of events may be random (in the technical sense of 'unpredictable') and yet at the same time be the outworking of a well-conceived plan. The fact that the plan in this case does not always make sense to the scientific observer is of little significance. The most enlightened Christian will readily confess that there is much beyond his comprehension in God's present working in the world; and I see no reason to expect that God's past work should be any less incomprehensible.

The idea that evolution has been accomplished by gross ferocity on the part of predatory animals, with consequent inordinate suffering on the part of weaker animals, is a misunderstanding of natural selection. 'The struggle for existence' is a metaphorical expression, which does not imply an actual physical contest. It means only that slight variations in the organism-environment relation are sufficient to produce a differential reproduction rate, which will, through several generations, tip the balance of a population towards one variant form rather than another. If this has been the mechanism of evolution in the past, it has probably entailed no more suffering than occurs at the present day. This is not to deny that the problem of suffering still remains for the Christian; but it suggests that the theory of evolution by natural selection does not augment the problem in any way.

Evolution and Natural Theology

Perhaps the most impressive argument of Natural Theology has been the Teleological Argument. This, which reasons from design in nature to a Designer, was formulated by Aquinas, and later expounded in great detail by Paley.[2] It was attacked, on logical grounds, by both Hume and Kant, but nevertheless continued to enjoy a great popularity

[1] G. E. Barnes, 'The Concepts of Randomness and Progress in Evolution', *Faith and Thought*, **90**, 3 (1958), 183-204.

[2] Wm Paley, *View of the Evidences of Christianity*, 1794.

in Christian apologetic works for another century or so. A major part of the evidence, on which the argument from design was based, was biological: the evident fitness of the environment to sustain life, and the intricate adaptations of organisms to the environment. This coadaptedness of organism and environment is a very striking example of order in nature; and, before the theory of natural selection was developed, the only way to explain order satisfactorily was by design; and design required a Designer.

By the theory of natural selection, this order can, however, be explained mechanistically. As random changes take place in organisms and their environments by the operation of natural laws, only those changes which adapt the organisms to their environments persist. In this way order is maintained. This mechanistic explanation does not require the postulate of a Designer; but neither, on the other hand, does it exclude the possibility that there is one.

Evolution and Ethics

The theory of evolution has been linked with ethics in three different ways. It has been argued, firstly, that man's ethical sense (i.e. his awareness of a responsibility to engage in certain thoughts and actions, and to avoid others) has been evolved alongside the evolution of his physical characters, and possibly by similar mechanisms; secondly, that man's ethical values can, or must, be derived from a study of the features of human evolution; and, thirdly, that ethical values must be such as to ensure future evolutionary progress of the human race. The second and third of these arguments, which are logically related, and which usually go together, have been discussed fully elsewhere.[1] The first, however, requires consideration here.

Natural selection has usually been invoked as one factor, if not the only factor, in the evolutionary derivation of man's moral sense. It has been suggested that moral codes have been established because behaviour in conformity with them is of adaptive or survival value.

Now it may be possible to explain man's peculiar behaviour patterns in this way: but it is difficult to understand how the concomitant subjective awareness of responsibility, or duty, has come about by natural selection; particularly as the sense of duty often conflicts with outward behaviour, and thereby produces psychological tension. It is, furthermore, difficult to explain how altruistic ethics, which may be damaging

[1] G. E. Barnes, op. cit. *Faith and Thought*, **90**, 3 (1958).

to the person who puts them into practice, have been developed by natural selection.

It is probably for these reasons that recent writers[1] on Evolutionary Ethics have further invoked Freudian theories to account for psychological attitudes which, it is alleged, are determined subconsciously by experiences during infancy. But, as Lack[2] has pointed out, these writers appear not to have worked out satisfactorily the relation between Freudian theory and natural selection. For attitudes determined by infantile experiences are not, as far as we know, inherited and, therefore, cannot be subjected to control by natural selection.

Another way in which moral sense has been explained[3] is by regarding it as a product of increasing intellectual ability, which itself can be accounted for by natural selection. But if morals are merely intellectual inferences, they must be derived logically from axiomatic truths or objective data; and in the realm of ethics there are no axiomatic truths, and objective data are irrelevant. So it is difficult to imagine how a moral awareness could arise intellectually.

One may conclude, then, that the attempt to explain the awareness of moral responsibility in evolutionary terms has not, so far, been successful. But even if the development of a moral sense were to be satisfactorily explained mechanistically, this still need not be a difficulty for Christian faith. For mechanism is merely an objective interpretation of God's creatorial activity.

Evolution and Vitalism

In addition to human values, there are other biological facts which are not easily explained in terms of natural selection. The complex adaptive changes, that had to take place presumably concurrently, in order to convert a reptilian forelimb into a useful bird wing; the elaborate developments that must have taken place together in many different tissues before a vertebrate eye could function effectively; these, and other features of life, are repeatedly quoted as being beyond the power of natural selection to explain. Whether or not this is so is still an open question; but I must admit that I have a certain amount of sympathy with those writers who feel (and I think 'feel' is the right

[1] J. S. Huxley, *Evolution and Ethics*, 1947; C. H. Waddington, *Science and Ethics*, 1942.

[2] D. Lack, op. cit. p. 102.

[3] C. Darwin, *The Descent of Man*, 1871.

word here) that the odds against these developments are so large that a Darwinian explanation is beyond the limits of credibility.

In order to explain what they regard as otherwise inexplicable, some writers have postulated that living matter has within it some non-material 'force' or 'urge' which has directed evolution. Called *élan vital* by Bergson,[1] 'life force' by Bernard Shaw,[2] 'holistic urge' by Smuts,[3] and 'entelechy' by Hans Driesch,[4] it is always a factor invoked to fill a gap in mechanistic explanations. Thus vitalistic theories have been called in to account for what the physicist would call local decrease in entropy, what the psychologist might describe as an urge, or what the philosopher would designate values.

Such views have found little support from biologists. In fact, both scientists and philosophers have usually reacted against them, for very good reasons. The quasi-mystical force postulated is, by definition, incapable of detection by the empirical methods of science; and vitalism, if accepted, would therefore tend to stifle further scientific research into the gaps. So however much one may feel that current Darwinian explanations are deficient, that deficiency is not to be remedied by the addition of vitalism.

Vitalism is now, quite rightly, a lost cause; but it is a lost cause from which Christians ought to derive a lesson. For the arguments of the vitalists have often been exactly paralleled by the arguments of Christians, who have pointed to the gaps in mechanistic explanations as evidence of the 'hand of God'. The scientific investigator has, of course, just as good grounds for rejecting the postulate of divine activity, based upon this evidence, as he has for rejecting an *élan vital*, based upon the same evidence. And, furthermore, gaps have a habit of closing up.

Needless to say, although science, for methodological reasons, repudiates the filling of mechanistic gaps with vitalistic forces or theistic intervention, it is not in a position to deny that such influences are operative. If they are, the evidence for them will be outside science. It is difficult, however, to conceive what sort of evidence could be adduced in favour of vitalism, unless it be the evidence of the mystic; but this type of evidence is so personal and subjective that it carries little weight with others. The evidence for theism, on the other hand, is—at least, for the Christian—in the objective revelation of God in Christ.

[1] H. Bergson, *Evolution Créatrice*.
[2] G. B. Shaw, Prefaces to *Back to Methuselah* and other plays.
[3] J. C. Smuts, *Holism and Evolution*.
[4] H. Driesch, *The Science and Philosophy of Organism*.

Evolution and Mysticism

A few months ago there was published an English translation[1] of Pierre Teilhard de Chardin's book *Le Phénomène Humain*, which is an attempt to give a Christian interpretation of evolution. It is a fascinating book—but very difficult to read.

Père de Chardin emphasises in the preface that his book is to be read purely as a scientific treatise, and not as a philosophical or theological work. This, however, is impossible: whatever else the book is, it is certainly not a scientific work. His starting point is, not evolution as evidenced by the objective data of the scientist, but evolution as viewed through the rose-tinted spectacles of the scientific humanist. His view, in fact, has much in common with that of Sir Julian Huxley (who contributes an introduction to the English translation) and, at times, approaches even the optimistic philosophy, of the inevitability of progress, of Herbert Spencer. His method of interpretation is to start with what he calls 'the phenomenon of man', and to extrapolate both backwards and forwards in time. Thus, since man has both subjective experience (the 'within') and objective features (the 'without'), so the whole of evolution, cosmic and organic, leading up to man, is the manifestation of these two aspects of reality; and the whole universe, therefore, has a within and a without. Furthermore, just as the without has shown increasing complexity from simple inanimate structures to highly elaborate living organisms and communities, so too the within has undergone similar changes. This process of complexification, as he calls it, he envisages continuing in the future until, at a remote time, the Omega-point, it produces a final state of hyperpersonal unity, which he appears to identify with Deity.

de Chardin makes no attempt to justify this type of extrapolation, either by scientific reasoning or by reference to revelation. If his view of the universe is more than pure speculation—and one would expect the speculation of a world-renowned palaeontologist to be disciplined by experience—it is presumably grounded in mystical experience. It is surely significant that several comments and reviews of this work employ such words as 'vision' and 'visionary' in speaking of de Chardin's thought.

No doubt in keeping with this mystical disposition is his use of poetical language, in which much of this book is written. This style,

[1] Pierre Teilhard de Chardin, *The Phenomenon of Man* (Collins, 1959).

although pleasing to read, renders the book in places very difficult to understand. One sometimes cannot be sure whether passages are to be taken literally or figuratively, with the result that the details of his arguments are difficult to follow.

If, however, I have understood them aright, there are several criticisms which could be levelled against de Chardin's thesis. One could, for example, question the validity of the reasoning whereby he argues from increasing complexity of the without to increasing complexity of the within. Surely the within and the without constitute two different logical categories,[1] and variation in one does not necessarily imply corresponding variation in the other. One could also question whether the randomness of past evolution permits any sort of prediction about future evolution.[2] Furthermore, many Christians will think that his apparent identification of the final, hyperpersonal, state with God comes much too close to pantheism to be acceptable; and the conservative Christian will feel that his complete ignoring of sin (in its Godward, as distinct from its social, aspects) and his reliance upon human psychosocial evolution to produce his millennium ally his thought too firmly to an unscriptural humanism.

I hazard the guess, therefore, that de Chardin's thought will commend itself neither to the scientist who wishes to remain objective nor to the Christian: it may, however, have a strong emotional appeal to the scientific humanist.

Evolution and Humanism

Although humanists have frequently found support for their views in the theory of evolution, others have argued that the theory of natural selection completely undermines all humanistic philosophy.

If man has achieved his present condition by the operation of natural selection, it follows that his reasoning powers, like his anatomical and physiological characters, have been developed because they are of survival value, and not necessarily because they lead to true judgments. Human reasoning might, of course, be valid; but there is no guarantee that it is: for if some erroneous beliefs conferred greater likelihood of survival upon man, the reasoning that produced them would become established. If, then, human reason is untrustworthy, all the products

[1] D. M. MacKay, 'From Mechanism to Mind' (and discussion), *J. Trans. Vict. Inst.*, **85** (1953).

[2] Discussed more fully in G. E. Barnes, op. cit. *Faith and Thought*, **90**, 3 (1958).

of human reason, including humanistic philosophies and, for that matter, the theory of evolution itself, are equally subject to doubt. Darwin [1] himself was aware of this problem.

The Christian, on the other hand, who accepts the theory of evolution, escapes this impasse; for he believes, on non-scientific grounds, that human reasoning, although possibly a consequence of natural selection, is also a God-given means of knowing the truth.

C. SOME CONSEQUENCES OF THE CONTROVERSY

Whenever Christians have accepted the challenge of the theory of evolution, they have been stimulated to think anew about some aspects of their faith; with the result that some traditional interpretations of the Bible have had to be discarded, some arguments of Natural Theology have had to be amended, and some Biblical teaching, long neglected, has been reinforced. The Bible itself has emerged unscathed from the conflict, while Christian thought has become clarified.

The following are some of the lessons which Christians have learned, or ought to learn, from the debates mentioned in this paper.

1. Between the times of Newton and Darwin, the universe was envisaged as working mechanistically according to natural laws, with creatorial interventions from time to time by God: the normal operation was amenable to scientific investigation, while the 'creative acts' would be recognised as scientifically-inexplicable discontinuities. The theory of evolution, however, postulates that new forms of animals and plants have come into existence by means other than discontinuities; that the laws that govern the regularities of the universe also govern the novelties. There are thus only two possible views of the control of the universe: either God is active all the time in everything, or else He is not active at all. The materialist adopts the latter view, but the Christian is bound to adopt the former. Thus the Christian has been forced back from the pre-Darwinian near-deism to a scriptural theism.

2. It was pointed out above that, in Darwin's time, the phrase 'after his kind' in Genesis i was interpreted in terms of the then-current scientific concept of the fixity of species; and that when Darwin attacked this concept Christians felt obliged to defend it, in order, as they thought, to defend the Bible. Their defence soon had to give way under increasing weight of scientific evidence to the contrary. Let us, from

[1] C. Darwin, Autobiography (1876), in *Life and Letters*, ed. F. Darwin (1887), vol. I.

this conflict, learn the lesson that it is dangerous to ally contemporary science to Christian truth; the ally may prove a weak one, and Christians may find themselves trying to defend the indefensible.

The temptation is with us today. Attempts are now being made to interpret Genesis i in the light of the theory of evolution: the 'days' are said to represent certain geological epochs; the Hebrew categories of organisms are identified with certain groups of animals or plants; and Adam is the founder of a particular culture. It should be realised that a time may come when the present theory of evolution has to be replaced by something better. Should the Christian feel that he must construct a picture of the universe which unifies his science and revelation, let him hold it, therefore, very loosely.

3. The impossibility of reconciling the traditional interpretations of the creation narrative with the theory of evolution has caused theologians to reconsider their attitude to the first three chapters of Genesis; and it is now generally agreed that these chapters are, not a short textbook of geology and biology, but a source of spiritual knowledge. Although they describe historical events, they do it from a spiritual viewpoint. (In this respect they resemble other historical narratives in the Old Testament.) It is illogical, therefore, to attempt either to predict, or to verify, or to falsify, geological or biological assertions by argument from the creation narrative.

4. One important consequence of the evolution controversy is that we now have a better understanding of both the scope and limits of science. Before Darwin's time, it was believed by many Christians that certain events, such as the origin of life and species, were scientifically inexplicable, because the Bible depicted those events as God's handiwork. We have now learned that all phenomena are, in principle, capable of being investigated and explained by the scientific method. The field of scientific exploration is co-extensive with the universe. And yet, as the foregoing discussion has shown, a scientific description of an event does not compete with, or exclude, a Biblical description of the spiritual or moral aspects of that event. Science may survey a field co-extensive with the universe, but it does not dig beneath the surface into the dimension of spiritual truth.

5. There was a time when man could regard himself as an observer introduced into, but hardly part of, a universe which obeyed a few simple rules of Newtonian physics. Man understood all the rules, which took the form of mathematical equations. If then he believed in a Creator, that Being was considered to be an omnipotent, yet relatively

simple, Pure Mathematician. The theory of evolution has demonstrated that man is, not just an independent observer, but an integral part of that universe. The plan of creation is not just an engineer's drawing of a myriad revolving spheres; it is a work of art, a masterpiece of incredible complexity and beauty. The vast sweep of physics from the atom to the galaxy is a relatively insignificant detail; for the plan includes life; conscious life; communal life; life able to survey the universe and to investigate its own origin; life able to appreciate goodness, truth, and beauty; life able to love; and life capable of enjoying communion with its Creator. The plan has been working out over millions of years, and has involved a complex of changes of which the significance is beyond man's understanding. Whole continents have been changed; innumerable species have come and gone, in order that God's purposes in creation might be achieved.

Even Darwin could write, 'There is a grandeur in this view of life, with its several powers, having been originally breathed by the Creator into a few forms or into one; and that, whilst this planet has gone cycling on according to the fixed law of gravity, from so simple a beginning endless forms most beautiful and most wonderful have been, and are being evolved.'[1]

Thus the theory of evolution has taught the Christian that God's ways are as profound and inscrutable in creation as they are in redemption.

6. 'Canst thou by searching find out God?'[2] is an ancient question which the Biblical writers consistently answered in the negative. Paul, in particular, argues that 'the world by wisdom knew not God'.[3] And yet medieval christendom expended much thought in attempting to do what the Bible said was impossible. The result, Natural Theology, has influenced Christian thought ever since.

The theory of evolution by natural selection has, however, undermined what was probably the strongest argument of Natural Theology, the argument from design. This is a fact which many preachers seem to have overlooked, if one can judge from the use, made in the pulpit, of the witness of nature.

The Bible undoubtedly speaks of God's revelation in nature; but this revelation, like any revelation human or divine, can be accepted only by faith. In other words, one cannot argue convincingly from the state of nature to the existence of a Creator, but, if one believes that

[1] C. Darwin, *The Origin of Species*, closing words.
[2] Job xi. 7. [3] 1 Cor. i. 21.

there is a Creator, one can learn something of His glory and wisdom from the world that He has made. This, I suggest, is the Biblical teaching; and, if the theory of evolution causes a return to a more Biblical use of the witness of nature, this will be another valuable consequence of that theory.

7. Lastly, the debates consequent upon the rise of evolutionary thought have demonstrated the inadequacy of two philosophical systems inimical to the Christian faith, viz., secular humanism, and evolutionary ethics.

D. THE CHRISTIAN'S ATTITUDE TO EVOLUTIONARY THEORIES

If the Christian believes that the Bible and the universe are two companion volumes by the same Author, he need not fear, but should rather welcome, all scientific investigation. Sooner or later it will lead to truth, which can never conflict with revelation, and which may even help him to a better understanding and interpretation of revelation. In its search for truth, science does often lead to error; but the error is eventually discovered by science itself, and is replaced by something nearer the truth. In this way science progresses.

For this reason, the Christian should welcome the theory of evolution, for it represents a stage in man's discovery of the truth concerning the origin of life and species. I imagine no scientist at the present time would claim that contemporary evolutionary theories are the whole truth and nothing but the truth, but we have good grounds for believing that they are nearer the full truth than were the theories they have replaced. If, then, difficulties for Christian faith arise in the advance of science, the Christian ought to accept them as a divine challenge to further investigation and thought, knowing that therein lies the way to truth.

Does this mean that he should have no reservations in following the progress of thought? As far as scientific thought is concerned, I suggest it does mean this; but with philosophical thought, no. For philosophy, unlike science, cannot be tested empirically against God's revelation in nature, so there is no guarantee that philosophy will ever lead to the truth. The Christian, then, must question every philosophical speculation, and test it against God's revelation in Scripture.

What limits then does Scripture impose upon evolutionary philosophy? Firstly, it teaches that there is a Creator, Who planned, initiated, and maintains, the whole universe. Secondly, it teaches that there

is in nature a spiritual and teleological order in addition to, and more important than, the causal order which science investigates. Thirdly, it emphasises that man is a spiritual being, as well as an animal; and therefore capable of knowing God, and of defying God, yet nevertheless responsible to God. Any philosophical speculation that denies these truths the Christian must reject.

But, as for science, what better attitude could the Christian adopt than that expressed in these words of Bishop Wilberforce, quoted by David Lack?[1] 'We have no sympathy with those who object to any facts or alleged facts in nature, or to any inference logically deduced from them, because they believe them to contradict what it appears to them is taught by Revelation. . . . To oppose facts in the natural world because they seem to oppose Revelation . . . is . . . but another form of the every-ready feeble-minded dishonesty of lying for God, and trying by fraud or falsehood to do the work of the God of truth. It is with another and a nobler spirit that the true believer walks amongst the works of nature. The words graven on the everlasting rocks are the words of God, and they are graven by His hand.' They cannot 'contradict His word written in His book. . . . There may be to man difficulty in reconciling all the utterances of the two voices. But what of that? He has learned already that here he knows only in part, and that the day of reconciling all apparent contradictions between what must agree is nigh at hand.'

[1] D. Lack, op. cit.