### TORONTO, CANADA

1. EVOLUTION AND SOVEREIGNTY: CHANCE IN A PURPOSEFUL WORLD

Dr. T.H. Leith\*

Few questions have stirred up as much controversy within the Christian community as the one asking whether the theory of evolution can be reconciled with the belief in a Creator, particularly a Creator sovereign over his creation. In this paper I wish to examine some of what I take to be the major issues at stake and to suggest some solutions.

1.1 Atheism and evolution theory : purported logical and psychological connections

First, let met examine the belief that the theory of evolution is possible only for those of an atheistic persuasion. Many Christians point to the large number of atheists who are evolutionists as evidence but surely this is mistaken. Many of those who believe in Einstein's theory of special relativity are also atheists but we do not upon that ground deny the theory. If truth or falsity has objective meaning, and I think that they do, then whether a theory is true or false can scarcely depend upon the beliefs of its adherents. One might, however, agree that there are many atheists in society (particularly in the scientific society), so that it is not surprising that many will hold any contemporary scientific theory such as special relativity, but argue that in the case of the theory of organic evolution there is some logical or psychological connection between atheism and the theory.

Some scientists have indeed claimed that the theory makes it at least highly probable that there is no Creator and certainly not a Deity Who sustains His creation. I will look at their arguments in a moment but, as one who believes that God

Koers, 49(4) 1984

Dr Leith, addressing the IRS, PU for CHE, in September 1984,

is not bound in creation except by His nature, I will have to be shown that a world of evolutionary life processes denies that nature if I am to conclude that the theory urges one to atheistic conclusions. Turning to the psychological connection, I will agree that many an atheist has interpreted evolution atheistically. Some have come to evolution as atheists and welcomed it while others, like Darwin, have first been evolutionists and have then denied the God in which Christians believe. But surely how one interprets evolution is not limited to atheism. I believe, for example, that it is consonant with Paul's description of Christ as God's vehicle in creation given to us in Colossians chapter one. I am not then impressed that others feel at home as atheists with the same theory, and the same set of observations which it interprets, as do I. After all the same situation applies throughout science : some of us are atheists and some of us aren't and we interpret nature and all scientific theories differently as a result.

# 1.2 The Christian claim that evolution theory denies God's role in nature

Let me now turn to the argument of some Christians that the theory of evolution leaves God out of the biological picture. I find this a quite strange idea for God doesn't appear in the language of, or the theories of, chemistry or physics for example and yet we do not deny them on that account. Surely we expect to understand nature theistically at a more profound level than at the level of scientific theories and the laws of nature which they seek to explain.

The idea is also strange if the argument rests on the fact that the fossil record shows sudden appearances of new life forms and that these can properly be understood only as creative acts of God. Is it not the case, however, that fossils disappear suddendly too in the geological record and that in recent years we have begun to find extensive evidence that these disappearances are due to natural events? Why then cannot sudden appearances also be natural, especially when we have

quite interesting and quite plausible arguments available as to how they might occur? More importantly, even if we had no plausible explanation, we do not bring God into our discussion properly when we use Him to explain events that we don't comprehend. Explaining away our ignorance by using Divine intervention runs into the real risk that God's role in nature will be diminished by every advance in our understanding. And, far worse, it draws our attention away from the fact that God is to be understood as sovereign over all creation and not just as a supernatural intruder into an otherwise natural world.

#### 1.3 The claim that evolution theory is contrary to Scripture

We must now examine the claim of some Christian folk that the theory of evolution is contrary to Scripture. This may of course appear to be if we misread Biblical teaching just as it is so if the Bible does in fact deny the possibility. We must therefore be careful here. People have in the past misread the Bible in matters of scientific interest : they surely did this with verses like Psalm 19:4-6, 75:3, 93:1, Job 26:7 and Ecclesiastes 1:4-5 in denying Copernican astronomy and with the Noahic flood account in building a mistaken geology in the 18th century. It is always embarrassing to have science finally enlighten us on the breadth of possible exegesis of Bible texts. This is not to say, however, that within the scope of possible meanings of text science may not aid us in being more specific. We must also recognize that the intent of Scripture is scarcely to teach us a variety of scientific truths for its purposes seem clearly to be quite different. In fact the meaning of Genesis chapters one and two should have been intelligible to its readers long ago : what then of the idea that it teaches the fixity of biological genera or species if such concepts were to become reasonably clear only many centuries later?

Finally, if evolution has in fact occurred in the biological realm, and if God is revealed coherently both within nature

and Scripture, we shall expect that the teaching of Scripture will not forbid that process.

## 1.4 The claim that evolutionary ethics and Christian ethics conflict

I must return now to the arguments sometimes used to draw atheistic conclusions from evolutionary theory which I mentioned earlier. Some of these are along the same lines as those used by Christians: if there is a God He should appear within the paleontological and biological record and if evolution is the case then it falsifies Biblical teaching. I have already responded to these and they need delay us no further. Other arguments suggest that ethical principles can be drawn from an evolutionary account of things and such principles are quite unlike those of a Christian ethic. If this is taken to mean that evolution entails such principles, the argument is nonsense because one cannot derive what ought to be done from a description of what is the case.

1

If it means instead that ethical rules ought somehow to be consonant with evolutionary processes, while this is not and has not been at all easy to work out, it is not in principle untenable. The difficulties are evident from past discussions of social Darwinism for example: do we promote the interests of those who seem fittest in social and economic struggles or do we foster co-operative processes (also found in nature) which help protect the weak? The value of an ethic consonant with evolution, on the other hand, appears in cases like environmental ethics but why must anyone a priori assume that a Christian stewardship of the environment will not be attentive to life processes as we find them?

If there is a conflict between Christian and other ethical systems it doesn't arise (say) from ecology, or genetics, or adaptive processes in nature but from differing views of how to act, given what is found in the living world. Not all ethical codes will agree with a Christian ethic on what to do to preserve, or alter if need be, our environment; nor

on what to do with genetic engineering techniques; nor on how to handle population pressures and finite recources, and a host of other things all closely related to evolutionary matters.

# 1.5 Does evolution as a chance process deny to man cosmic significance?

There is a quite different kind of argument to atheism which I have yet to mention. Some years ago Monod, an eminent scientist, argued that as evolution is a chance process, man as its product has no cosmic significance. The conclusion clearly differs from the view that man is made in the image of God and thus has a nature and a destiny determined by a Sovereign Deity. It is therefore implicitly a denial of the biblical God.

However, Monod appears to forget that chance processes may also be lawful. Living things then may emerge and evolve in certain predictable ways from simple levels to the very complex: atoms, as we find them to be in our world permit only certain molecular arrangements, these in turn permit only certain cellular structures and so on. It is within these constraints that the unpredictable factors of mutations and natural selection must operate. Why is it not legitimate then to say that God created a world with certain potentialities and that the interplay of chance and law is his way of creatively acting within nature? I cannot see why it would be illegitimate for a Christian to think that way. If I am correct, my conclusion is not that man is without cosmic significance but rather that evolutionary processes are possibly one of God's methods of revealing the potentialities with which He has endowed the natural world. Also, if the process of change and law leads to an inevitable hierarchy of complexities, we can describe God's activity as providing the proper characteristics to the physical world so that, at any time subsequently, those biological forms which He intended will indeed appear.

# 1.6 A possible evolutionary model of God's creative activity

This sort of conception of God's creative activity may seem

a bit odd because Christians who accept evolution often seem to think that somehow God needs, like Newton's deity who kept the planets in their courses by "deft touches", continually to steer the process in order for it to lead where God intends. Apart, of course, from the general fact that God creates and sustains nature through Christ, and thus that no event, however small, occurs except under God's sovereign control, there is no reason to think specifically this way. Take chemistry for instance. When we put sulphur dioxide into a moist atmosphere we expect acid rain to fall and we say that this follows from chemical laws and the nature of chemical substance. We don't, as Christians, think of God steering the process but rather think of it as unfolding the potential implicit within the world which He has made. Should we not then understand evolutionary development in the same fashion?

Indeed, some contemporary theoretical physics is moving in something like this direction. It is now recognized that the laws of physics with which we are familiar are applicable only because we live in a rather low-temperature universe. But we also live in a universe which seems to have expanded and thus one in which long ago temperatures were much higher. Thus as we move backward in time atoms can no longer exist and the laws governing them cannot appear; even earlier atomic nuclei become impossible together with their law structures. and still earlier the multitude of sub-atomic particles vanish and we enter a world of quarks. As we go even further back, theory suggests that the force involved in radio-activity which we call the weak force and the electromagnetic force unite. Yet earlier this force is united with the strong (or nuclear) force, and beyond even that point this force and gravity form a single unified force of nature. In other words our very complex world results from our observing it in a low energy state but it is also the consequence of very different earlier conditions.

The explanation of the steps from the first moments of our cosmos to the present is exceeding difficult but it appears

that very tiny differences in conditions long ago would give us quite a different universe from that which we experience. Indeed, the conditions which would permit life and conscious observers like ourselves to exist at all are very limited. A Christian might then say that, if God had intended that man exist to glorify Him and enjoy Him forever (as one catechism puts it), it was necessary that the world be of a quite specific sort. That is, of course, merely a new form of an old thesis: if the Earth lay much nearer the Sun or much further away, if it were much more massive, if the atmosphere differed and so on, earthly life as we know it could not exist.

At one time such a thesis was used to argue to the design of nature but it was employed very differently later. After Darwin, it was said that life arises and survives on the earth naturally and that, because of the prevailing conditions, life has the forms which it has. Cannot both design and adaptation be true, though? Are they not complementary ways of speaking, the one theological and the other scientific? Likewise the physicist's ideas of cosmic development and the Christian interpretation, as I see it anyway, are different ways of discussing the same thing.

In passing I might comment on what may seem a contradiction. Earlier I said that God can create, and could have created, any sort of universe consonant with his nature but now I have remarked that if man were to appear the chances are very constrained. The latter would not be true, of course, if God created a cosmos with the general character that we now have: we might have appeared on a similar planet to another sun, there might be fewer stars in our sky, these might be only one galaxy and so on. But our cosmos has also evolved through time since its beginnings and this, scientists now think, greatly limits the early conditions which would give us a universe such as we are now in. In theistic terms this means that if God chose freely eventually to have a cosmos in which man could appear He had to choose very specifically at its origins. The contradiction therefore is only apparent.

#### 1.7 God, evolution, and the origin of human consciousness

In concluding my paper, which has taken a model of creative activity as the evolutionary unfolding of created potentiality, I would like to make some observations on the origin of human consciousness. I begin with a remark about scientific theories. Such theories are often hierarchical, that is high-level theories embrace lower-level theories and the concepts at each level differ and are differently related. They purport to describe nature, therefore, in a hierarchical manner. Thus the concepts of chemistry do not apply to physics and those of biology do not apply to chemistry, yet chemical processes depend upon atoms and physical laws and biological processes depend upon molecules and their interaction. A level of description in which a concept such as "life" is appropriate is inapplicable to molecules, for example, just as concepts of ethical behaviour do not apply to rocks. I think that this description of the world as a hierarchy is rather what Dooyeweerd called the "law spheres" of creation.

If the concepts and theories about differing levels in natural systems are not reducible to those of lower levels, I have also said the processes at one level are nonetheless determined by those at a lower level. Indeed, in this paper, I have discussed complexity as the unfolding of the potentials intended by God and provided by simpler conditions. Applying this now to the brain we may say that neural descriptions, in theories about such activity, are at one level but if we wish to use mental concepts they are at another : the brain isn't conscious, for example, yet human consciousness can arise only when the brain has become sufficiently complex. When we speak of the mind we speak of a novel function arising in nature when cells are active in a certain organized way and we don't mean that, as with the brain, we can say "where is it?" as "of what is it made?". And, as Donald MacKay has argued, when we say that the brain is a certain sort of mechanism we do not imply that human freedom is therefore impossible.

I have tried in this paper to show that the thesis of evolution is not incompatible with a Christian life and world view. I have also attempted to provide a way of making sense of how God's creative activity is performed, that is to make the compatability more apparent.

#### 2. SCIENTIFIC CREATIONISM AND CREATIONIST SCIENCE

### 2.1 A proper world-view

This university is built upon the belief that the Word of God is to be found not only in Scriptural teaching but also as the Christ through Whom God creates and sustains the world. This means many things. It means, for one thing, that nature does not lie beyond the sovereignty of God and, because God is faithful, that nature functions lawfully. It means also that the knowledge of God found through Biblical revelation has the same intention as knowledge given to us through nature. It means for another thing, that nature is properly interpreted at the most fundamental level only if it is seen as created and sustained by God. It means too that knowing God, and having faith in God, are intimately related.

## 2.2 A distorted Christian world-view

Many Christian have managed to distort this world-view. Instead of seeing God in all natural processes thay have tended to find God manifest in intrusions into nature. Thus, to use an example, when they study the fossil record they do not emphasize God's dominion over all past life in all times and at all places but rather point to the appearances of new life forms in the record as the significant evidence of God's creative activity: the tendency is to split asunder nature into a natural-supernatural dichotomy. Instead of believing that the scientist can gain insight into God's processes of creational and sustaining activity in the world, they believe that the Bible alone provides a proper foundation for scientific belief. Thus, while it is true that we must listen to the Word in Scripture and recognize

the Bible as showing that nature is properly understood only as God's creation, they mean that we can learn specific ideas in geology and biology and so on from certain Biblical passages and that the geologist or the biologist who differs is mistaken.

This sort of aberrant Christian world-view is of long standing. As late as the time of Galileo many believed that certain verses such as Joshua 10:12-13, 2 Kings 20:9-11, Job 26:7, and Psalms 93:1 and 104:5 clearly indicated that the earth did not move and that the sun was our satellite. Today, no sane person denies that the earth rotates on its axis and revolves about the sun, so that the Bible must have been misread. In the 18th century many attempted to construct a geology upon Noah's flood as an earth-wide catastrophe and upon the idea that the earth's history extended for no more than about six thousand years (the Jewish calender dating is a relic of this attitude as are Ussher's dates printed in some Bibles). They failed to develop a geology which stood up to scrutiny in studying nature.

## 2.3 Properly relating science and Scripture

We should learn from such blunders. We should seriously consider that the intention of Scripture is not to teach science but, among other things, to tell us that God creates and sustains nature. We should develop proper hermeneutical principles so that we understand Biblical passages more clearly. And we should take scientists rather more seriously: they are fallible but, unless their endeavours are futile, we must believe that they do achieve improved levels of insight into the world so that when they differ from our readings of Biblical texts we have no right to say that they and not we are mistaken.

There is, of course, truth in the injunction that our reconciling Scripture and science is unnecessary because, in faith, we believe that nature and special revelation are consistent because of God's faithfulness. Misunderstood, it can lead to the idea that, because we are fallible creatures, we are forever freed

the responsibility to make our world-view as coherent is humanly possible. Misconstrued, it can lead to a kind intellectual schizophrenia where we accept views about man and nature which have a humanistic or naturalistic, and not a theistic, foundation and also religious beliefs inconsistent with them and based solely upon brute faith. We can also recognize that we would have been mistaken to find some kind detailed reconciliation of the Bible to the ideas of the 17th century (let us say) for this would now prove to be untenable : hence a neat reconciliation today is almost sure be wrong tomorrow. This does not, however, absolve us of all responsibility to study Scripture carefully nor to attempt to find out in science when we are likely to be wrong in our theories and to what extent we can be reasonably confident of their partial insights. What we seek is a progressive insight into nature, expressible in scientific language, which we will understand in religious language as a revealing of God's creation and which we believe is a fulfilment of our creaturely responsibility to learn of God using our mind and our senses while learning the Word in the world and in Scripture.

## 2.4 The nature of scientific creationism

A portion of the title of my paper speaks of "Scientific creationism". This is not to imply that one speaks of creation properly only as it is understandable in the light of contemporary science (or indeed science at any time) but rather that it is spoken of in a manner not inconsistent with the best insights of science. We who observe and attempt to comprehend nature are also part of the creation and we bear the marks of our fallen nature so that we tend to idolize, that is, we serve something other than God. Many natural scientists would then limit truth to science forgetting that they bring to it their corrupted minds. In common grace, however, they can still learn truths (however partial any creature's learning can be) even if they misunderstand its implications.

As Christian scientists we too can learn from nature and from our unbelieving colleagues but we are also called to hear God's Word manifested through nature and in Scripture. In consequence we see ourselves and the rest of the world as created - we are creationists. But we are creationists first and scientists second. Hence we don't say "creation is intelligible only through science" but "creation is understood through Scriptural teaching and our experience of nature and, though we are fallible in understanding both, we at least partially comprehend when we are consistent with our best insights into the Biblical text and into nature".

In this sense I am a scientific creationist. I try to learn from the blunders of the past. I don't try to reconcile the Bible and science in some improper sense. I also try not to distort the Christian world-view. I also attempt to work out the implications of my creationism philosophically scientifically and here I both learn from others and attempt to get people to think. Here I cannot but begin with what I take to be certain proper ways to comprehend (say) the early chapters of Genesis, of course with a lot of guidance from Biblical scholarship. Nor can I begin without taking seriously the evidence that the earth is very old and exceedingly complex in its history or the evidence that life began in ways describable in scientific language and has evolved. If, in faith, I believe the world to be created I must see these things as telling me something of how God seems (to the extent that science has correct insight) to create.

Some have asked if science too isn't a matter of faith, often presumably with the intention of convincing me that I am no better off than the person who accepts such things as a literal six-day creation as Biblical teaching. There is, however, I think, such a thing as well-founded faith. I don't think that Biblical interpretation provides a ground for a literal creation in less than a week though I believe it does provide reasons for a quite different sort of interpretation. I do think that scientific theories and the programme of research around them are well-founded to the extent that they have stood up to the scrutiny of expert criticism, including testing. Unlike

Feyerabend, an aberration among philosophers of science, I don't think that science is irrational. Of course I can't get into my reasons here for they are both complex and not really to the point of this paper. And, while I am on the matter of faith, I might add that I am convinced that an ultimate commitment to a Creator is different in almost every way from a faith in scientific matters.

#### 2.5 Scientific creationism distorted into creation science

What about the other part of my title? What is "creation science"? At one time those now accepting that name for their position called themselves, as I call myself, "scientific creationists" though they meant something very different. However, because they wished to suggest that their view was not necessarily a religious one - as I employed the term, scientific creationism certainly is fundamentally a religious position - they altered the terminology. A major reason was that, in the United States, they wished to have their views taught in the science classroom and one could only do this if it appeared to be science and if, in the American context which forbids state support to religion, it appeared not to be in violation of that prohibition.

Thus to explain what "creationist science" is I might begin with how it sees itself as a science. In part, unfortunately, this involves explaining things like the gaps in the fossil record, where they take the usual scientific explanations to fail and as evidence for the possibility of at least some kind of deity's creative activity. Not only may they well be wrong in their evaluation of contemporary science but theirs is an argument from ignorance and from what one doesn't know one can deduce almost anything. In part their argument depends on the claim that many geological theories, and the theory of evolution in any of its specific forms, are not science and that theirs is the only alternative. What makes something scientific is not easy to define but their criteria are not very satisfying. Also it is neither logically the case nor in fact the case that their view is the sole remaining option.

Another kind of argument is the claim that normal geology, astronomy and biology leave any sort of deity out of the natural world. Of course this is the case if we are speaking scientific language but that fact does not obviate the use of a complementary language in which nature is understood in terms of deity. Finally, I must mention their claim that nature may perpetually appear to be different from the way it really is, an argument the pope suggested to Galileo. If that is so then it dooms all attempts at scientific explanation and reduces science to the invention of useful fictions employable only as instruments for prediction or postdiction. The creation scientist then claims that this makes his creational alternative tenable: a deity may, perhaps must, create a universe with (say) the appearance of age even if it is really young.

You will observe that I have said nothing about creationist science as a science. This is because it is not itself usually presented as a theory or group of theories about which one can ask the usual questions that a scientist or philosopher of science might ask. Commonly it has no structure by which specific featurs of the world can be given detailed explanation and thus the theory is not testable. There are a few exceptions such as the use of a worldwide flood to explain very generally a variety of geological observations, but that theory has been around since Burnet developed it in the late 17th century, and so far it has proven quite unproductive. If it is to be more successful in future it faces the unenviable task of showing geologists that they have written millions of words of nonsense and that their hard-earned discoveries of how best to do geology are guite useless.

Any other exceptions that I have notices are attempts to account for geological and biological observations on the grounds that the basic kinds of organisms and the earth itself are created. This tends to become an exercise synonymous with arguments from design to the existence of a deity. As such they have its failings of special pleading and selection of illustration: they may be considered to be explanations only to the sympathe-

tic but to be taken seriously by the sceptical they must be justified. That requires that some *specific* plan, as to what creative activity intended for later earth and biological history, must be presented so that we can see if it explains what we find in nature. At best one might claim to find an outline of a plan in the Biblical text, but if that is done creationist science would show its hand as a Judaeo-Christian world-view.

# 2.6 Biblical interpretation and creation science : apparent age

If we ignore the political ploy which forces the creationist scientist to try to hide his roots in a specific sort of Biblical interpretation, perhaps those interpretations deserve our brief attention. In doing so I hope no one will complain that I haven't written a book dealing with all the exegetical claims of the group nor with my alternatives: this is a paper seeking only to sketch the contrasts between scientific creationism (as I and many others interpret it) and creation science, and it is not an attempt at a full defence of my interpretation of the former nor a full rebuttal of the latter. (See bibliography for some published sources)

Many creation scientists read into Noah's flood very fundamental changes in the appearance of the earth during the period for they take it to be universal and geologically catastrophic. In turn they interpret the catastophic events as either alterations in the laws of nature or in the rates of their activity. They may also argue that similar events occurred earlier, say between Genesis 1:1 and 1:2. From these considerations they conclude that, if we interpret geology in terms of the present, we shall end up with an apparent age for ancient events which is older by far than the true age. They may even claim that at the earth's beginning God created a world with an apparently great age. We may reduce the thesis to the statement. "Events have a true historical age and the apparent age of these events is greater than the true age". As science can secure by its

methodology only the apparent age, and as it takes this age to be true (within whatever error its methods may imply), science must forever be mistaken. If I wish to discover the true age I must have the information (if I can obtain it at all) from some sources other than science and, as the idea arises seriously only from a specific interpretation of Biblical texts, it is to the Bible that I must turn. There, like Archbishop Ussher years ago and the far more ancient Jewish calender, they claim to find evidence that the earth is only a few thousand years old. I am convinced that the exegesis is faulty and leads them grossly into error both in the context of the reasons on which they base the theory of apparent age and in the conclusions they draw as to the true age. Here I will be content to point out some consequences. One of these is that science, as we mentioned earlier in another context, doomed as it is to perpetual error on all pre-flood ages, is reduced here to flictions - and fictions which aren't even useful for postdiction to pre-flood times. If that is so, why then should anyone waste time becoming a historical geologist? Far more seriously, what do I conclude as a Christian if God's general and special revelations (and science is the method I believe by which we best experience God's faithful creativity in nature) are now reduced to endless disagreement? I am amazed that creationist scientists would choose to live with such an incoherent worldview.

# 2.7 Creation science and Genesis 1 and 2

Another aspect of Biblical interpretation which is manifested in creation science and which deserves our attention has to do with Genesis 1:24, 25. There we read that God made life forms of various sorts "after their kind". If I may quote the official statement of the Creation Research Society, a creationist science body, this is interpreted to mean that "all basic types of living things (are) made by direct creative acts of God (and) whatever biological changes have occurred since ... have accomplished only changes with the original created kinds". One must ask several quetions here. What

are "kinds": are they species, genera, families, classes, or phylla? It makes an immense difference to the amount of evolutionary change which one will permit. Again, if the Hebrew term "bara" or "create" is used only for the heavens and the earth, for animals, and for humans, what then of plants? And why is man said both to be created and also made of the dust of the ground and, in verse 11, what does it mean for the earth to bring forth grass (as the English translates it) or sprouts (as the Hebrew reads)? Surely we should expect the creationist scientist to address the question of what it is that is emphasized respectively in the appearance of something new under God's hand (creation) and in the development of something from something else. Then he or she might tell us why language emphasizing God's activity is not compatable in this view with another sort of emphasis upon the naturalness of a process. Unfortunately, they do not.

Genesis also speaks in imprecise Hebrew terminology of "creeping things", of flying creatures (misleadingly translated as "fowl" as it may include other things), and of large forms of sea life and four-legged animals. Surely one is not to derive any sort of precise biological information from this any more than one is to infer that, because the account describes the events of Genesis chapter 1 in the familiar language of a week, the creation began and was complete within six literal days.

## 2.8 Scientific creationism and creation science: the choice

Some have argued that theistic evolution has not only the scientific difficulties of evolutionary theory but problems in giving an account of man. This is true but it is at least an attempt to be faithful to what I called earlier "scientific creationism" and thus to both God's creative activity in nature and the evident major emphasis of the early portions of Genesis upon that fact rather than upon scientific detail. In contrast, "creationist science", as some will call their position, has the difficulties of failing as a science, of reducing the Christian world-view to incoherence, and of seeking to extract scientific

detail from Biblical texts, each with a very different apparent intent. I conclude by asking which of these sets of problems you would consider to be most tractable as a task for concerned scientists and Christians? I believe that I have at least indicated where my choice lies.

#### 2.9 References

1975. On understanding the geological record. Christian Scholar's Review. pp. 99-118.

Knowing and understanding in earth history. Christian Scholar's Review.

1964. What do we mean by the uniformity of nature? Gordon Review, Fall, pp. 2-17.

1980. Explanation, testability, and the theory of evolution. Journal of the American Scientific Affiliation. pp. 13-18 and pp. 156-163.

1973. Galileo and the church: Tensions with a message for today. Journal of the American Scientific Affiliation, pp. 21-24 and pp. 64-66.

1967. What is the philosophy of science? The Gordon Review, pp. 119-129.

1959. The need for an evangelical philosophy of science. Journal of the American Scientific Affiliation. pp. 3-13.

1972. Notes on the Predispositions of Scientific thought and practice. Journal of the American Scientific Affiliation, pp. 51-57.

1965. Some presupposition in the philosophy of science. Journal of the American Scientific Affiliation, pp. 8-15.