

# SCIENCE AND RELIGION IN DIALOGUE

Volume Two

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# Science and Scripture

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In this third chapter, I consider the consistency of Darwinism and Scripture (and, more generally, the consistency of science and Scripture). If Darwinism is consistent with theism, one might well suspect that it is inconsistent with an essential component of at least two of the three great theistic religions, Christianity and Judaism. That "component" is, of course, the doctrine that the Hebrew Bible is (and that the first three chapters of the book of Genesis in particular are) the Word of God. In this chapter, I will discuss and evaluate the grounds of this suspicion. It is modern geology and paleontology – not to mention modern astronomy and cosmology – that are in apparent conflict with the opening chapters of Genesis. It is for this reason that, in this chapter I shall be mainly concerned with the discoveries of those sciences and shall make only a few glancing references to the Darwinian theory of evolution.

In this chapter, my topic is modern science and Holy Scripture. I shall not be specifically concerned with the Darwinian theory of evolution in this chapter. What I have to say about Darwinism I have already said. In its strongest form (the form that includes "Allism") no one knows whether it is true – and Allism does no obvious scientific work. I defended this thesis in chapter 54. And, whether it is true or false, "strong Darwinism" is consistent with theism – and not only with the existence of God but with the thesis that God has so governed the development of life on the Earth as to *ensure* the eventual existence of rational beings like ourselves. That thesis I defended in chapter 55.

If Darwinism is consistent with theism, one might well suspect that it is inconsistent with an essential component of at least two of the three great theistic religions, Christianity and Judaism. That "component" is, of course, the doctrine that the Hebrew Bible is (and that the first three chapters of the book of Genesis in particular are) the Word of God. In this chapter, I will discuss and evaluate the grounds of this suspicion. It is important to realize that the ground of this suspicion is the very *data* of Darwinism and not the mechanism that Darwinism proposes to explain those data. The data of Darwinism have been supplied by geology and paleontology. They pertain to the history of the Earth and the history of life on the Earth. The thesis that the Darwinian theory is in conflict with the doctrine of the divine

inspiration of Scripture, if it is true at all, can be true only in the sense in which it is true that the District Attorney's carefully constructed narrative of the events culminating in the murder of Miss Jones is in conflict with the proposition that Miss Jones is alive and well. It is modern geology and paleontology – not to mention modern astronomy and cosmology – that are in apparent conflict with the opening chapters of Genesis. It is for this reason that, in the sequel, I shall be mainly concerned with the discoveries of those sciences and shall make only a few glancing references to the Darwinian theory of evolution.

Now as to the issue of the relation between the discoveries of astronomy and paleontology and the book of Genesis, a very wide range of positions is possible. But two positions stand out as extremes and have got the most publicity. The popular or journalistic names for these extreme positions are "fundamentalism" and "secular humanism." But each of these names has been objected to on various grounds, and, rather than become embroiled in terminological disputes, I shall invent my own names for them. More exactly, I shall describe, and invent names for, two positions that I believe correspond to *some* of the things said by people who are popularly called "fundamentalists" and *some* of the things said by people who are popularly called "secular humanists." I shall call the one "Genesiac literalism" (or literalism for short) and the other "saganism" – after the astronomer Carl Sagan, who was, before his untimely death, one of its most illustrious and talkative ornaments.

I begin with a statement of Genesiac literalism. (I say Genesiac rather than *Biblical* literalism, because I believe that the early chapters of the book of Genesis are a very special part of the Bible, and I mean to talk about them only. Nothing I say should be regarded as having any implications whatever for questions about how to read, say, Job or the Gospels or Revelation.)

The planet Earth came into existence about six thousand years ago, when God created it in a series of six 24-hour days. On the third, fifth, and sixth of these days, God created all the various species of living things, concluding with a single pair of human beings, the first man and the first woman. Any appearance to the contrary in the geological record is due to a worldwide flood that occurred about 45 hundred years ago; the geological distortions caused by that vast deluge created phenomena that the clever and perverse have – like someone finding internal evidence of Baconian authorship in *Hamlet* – interpreted as showing that the Earth is not thousands of years but thousands of *millions* of years old, its present geological features supposedly being due to the effects of various natural processes that have been at work over this immense stretch of time.

We know the facts I have outlined concerning the beginning of the Earth and life and man because God revealed them to Moses thousands of years later and Moses wrote them down in the book we call Genesis, a book that God has ensured is historically accurate in every respect because it is a part of his Holy Scripture. It is true that Scripture contains metaphor and hyperbole – as, for example, when it tells us that the soldiers of the kings of Canaan were as numerous as the grains of sand on the shore of the sea – but any reasonably intelligent and well-intentioned reader can tell when metaphor or hyperbole are intended by Scriptural writers, and the main historical statements of Genesis are clearly intended to be taken literally.

So says the literalist. The saganist tells another story:

The cosmos, the totality of the distribution of matter and radiation in space-time, is "all that is or was or ever will be." 10,000 million years ago or more, it was concentrated in a very

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tiny volume of space, which was, nevertheless, all the space there was. This tiny volume expanded very rapidly, and certain processes, which we are beginning to understand, led, after a few minutes, to the 3:1 ratio of hydrogen to helium nuclei that we observe today. A few hundred thousand years later, the density of the expanding universe had fallen to a point at which electrons could arrange themselves around the hydrogen and helium nuclei, and the space between the atoms thus formed was suddenly filled with free radiation, radiation that, vastly attenuated, is still detectable. Gravitational effects caused matter eventually to be concentrated in stars and galaxies. In the stars, new elements like carbon and oxygen were formed and were dispersed when these stars came to the ends of their lives and exploded. The scattered atoms of these elements eventually became parts of new stars and of solid planets circling them.

On at least one planet, but presumably on many, natural processes led to the formation of a complex molecule capable of replicating itself with variations. Owing entirely to the operation of natural selection, the descendants of this molecule achieved a sufficient level of internal organization for us to feel comfortable about thinking of them as living organisms. The blind but, in appearance, creative processes of natural selection continued to operate, and produced the cell, the multicellular organism, sexual dimorphism, and, eventually, representatives of all the phyla we see today (and some that we don't). In due course, owing to the interplay of variation and selection over hundreds of millions of years, intelligence appeared. (The broad outlines of the latter part of this narrative, the part dealing with biological evolution, have been accepted by every serious scientist since about 1870. Opposition to it is due entirely to theological obscurantism.) A short time later, perhaps through a social analogue of natural selection, intelligence developed *science*, a powerful, self-correcting mechanism for understanding the cosmos. Various older and much less efficient competitors with science – notably religion – survive, but, having tried and failed to destroy their new and dangerous rival in its infancy, they are steadily losing ground to it and will soon go the way of the saber-toothed cat. Perhaps the final nail in their coffin will be the discovery of intelligent life elsewhere in the universe, a shock they are too narrow-minded and parochial to survive.

As to the book of Genesis [here the saganists in the sciences are aided by their colleagues in the other culture], it was not written by Moses or by any single author. It is easy to see that it contains two incompatible accounts of the creation of humanity. One account, which roughly coincides with the second chapter, the detailed story of the creation of the first man and woman, is thought to have been put into its present form in something like the ninth century BC, hundreds of years after the death of Moses. The first chapter of Genesis (and a bit more), the "seven days" story, was written by priests about three hundred years later, probably during the Babylonian captivity of Judah. What both sets of authors were doing was editing and rewriting traditional material (ultimately derived from primordial Semitic creation myths) to bring this material into line with their own theologies, and with an eye toward the polemical requirements of the contemporary religious and political situations.

Well, here are two extreme positions. Probably every position one could take on the relation between the book of Genesis and the scientific study of the origins of the universe, the Earth, and humanity lies on the continuum between them. One possible position, for example, is *Deism*, which accepts most of the saganists' story but rejects its contention that there is nothing besides the cosmos. Deism postulates an intelligent Creator who set the universe in motion and then sat back to watch the show. (Like the typical Hollywood producer, this

Creator seems to have rather a taste for shows that involve sex and violence – especially violence. It is, however, doubtful whether he shares Hollywood’s taste for happy endings.)

What I mean to do in the rest of this lecture is, first, to set forth a position on the relation between Genesis and scientific accounts of the history of the universe that is radically different from literalism and saganism (and from Deism). I shall then offer critiques of both literalism and saganism from the point of view afforded by this position. I pick these two positions to criticize because, first, they have been getting the lion’s share of the publicity, and, secondly, as a consequence of the fact that they are extremes between which most if not all the other possible positions on this issue lie, what I would say about other positions may perhaps be gleaned from what I say about the extremes.

Now a word as to my own religious beliefs. I am a Christian. More exactly, I am an Episcopalian, and I fully accept the teaching of my denomination that “the Holy Scriptures of the Old and New Testaments are the revealed Word of God”; that they “contain all things necessary to salvation and are the rule and ultimate standard of faith”; that “God inspired their human authors and still speaks to us through the Bible.”<sup>1</sup> But I am not constructing a position that I recommend only to Episcopalians. I recommend this position to any Christian – and to any Jew – who regards the book of Genesis as the Word of God and who, nevertheless, rejects, as I do, Genesisic literalism.

While one might want to qualify this statement in various ways, in the light of such things as Martin Luther’s remarks about the Letter of James, it seems roughly correct to say that all Christians whose witness on the matter has survived have regarded the Bible as being divinely inspired throughout, and I have no intention of separating myself from this cloud of witnesses. How, then, shall those who agree with me and the literalists that Genesis is the inspired Word of God and who also agree with me and the saganists that life and the Earth and the cosmos have histories that are measured in thousands of millions of years explain themselves? This question is not, in its essentials, a new one. A lot of people seem to think that all Christians were literalists before the geological and paleontological discoveries of the early nineteenth century. Under the impact of these discoveries (the story goes), some Christians began desperately to scramble about to try to devise some way of reconciling science and the Bible.

This is historically false. Let us consider the greatest of all Christian theologians, St Augustine (whose death in the year 430 places him at a comfortable remove from the impact of nineteenth-century science on theology). Augustine argued that the “six days” account of creation in Genesis could hardly be literally correct, since (among other reasons he gives) it asserts that day and night existed before the Sun was made. (Let me assure you parenthetically that if the author of Genesis 1 did not know much about geology, he certainly did know that daylight was due to the Sun.) Now if Genesis is not a literally correct account of the Creation – Augustine reasoned – then it must belong to one of the many non-literal modes of presentation recognized by the science of rhetoric (which, as we should say today, was Augustine’s area of professional competence). But I do not propose to discuss Augustine’s hermeneutical theories; I am more interested in the account he gave of what he took to be the literal reality behind the non-literal presentation.<sup>2</sup> Augustine held that God had created the universe all at once, and that, at the moment of its creation, the universe was, by our present standards, without form, and was empty of things of the kinds it now contains. But there was *latent* form and there were things in which that form was latent. He calls these things *seed-principles*, using a botanical trope, as we use a political trope when we speak of the laws of nature. The newly created universe subsequently, by its

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own inner necessity, evolved into its present highly differentiated state, this present state having been implicit in its original state much as a field of grain is implicit in a mixture of seed and water and earth. (Or, at any rate, many aspects of the present state of the world were in this strong sense implicit in the initial state. Others may have been due to miraculous actions by God subsequent to the beginning of things. But if miracles did play a part in the development of the world, these miracles were not local acts of creation *ex nihilo*; they rather consisted in the miraculous activation of potentialities that had existed from the beginning.) This is not to say that Augustine believed in anything like what biologists today call "evolution." He did not believe that elephants were remotely descended from fish. The idea of the mutability of species would have been quite foreign to his Platonism. Rather, elephants arose from one seed-principle and mackerel from another. The "days" of Genesis, Augustine says, represent *aspects* of the development of the world; perhaps – he is rather tentative about this – what is represented is six successive stages of the angelic understanding of creation. Augustine's science may strike us as quaint, but it is evident that his account of the origin and development of the universe is no more consistent with Genesis literalism than is an article covering the same ground in last month's *Scientific American*. Nor is Augustine an isolated example of a non-literalist in the ancient world: the Alexandrian theologians, Gregory of Nyssa, and St Jerome (who produced the Latin translation of the Bible that was the Church's standard for 1400 years) were non-literalists. Jerome once remarked that, in his opinion, the author of Genesis had described the Creation mythically – "after the manner of a popular poet." In the Middle Ages, St Thomas Aquinas was a non-literalist, very much on the model of Augustine. Genesis literalism is, therefore, both ancient and fully orthodox: it would be a bold literalist who called the Bishop of Hippo a wishy-washy theological liberal.

Literalism before the Reformation was no doubt the majority opinion. The theory that the Bible is literally and in every sentence and in every respect inerrant is, after all, the simplest and most natural theory of the "reliability" of the Bible that must in some sense be a consequence of the doctrinal statement that the Bible is the revealed Word of God – just as geocentrism is the simplest and most natural theory of the causes of observed celestial motions. But *militant* literalism, the literalism that makes the denial of plenary verbal inerrancy a heresy to be destroyed before any other, is a child of the Reformation. (And not of the Counter-Reformation. To say that Galileo was condemned for contradicting the Bible on astronomical matters is, at best, a vast oversimplification of an extremely complex episode.) It is not hard to see why this should be, for one of the most important offspring of the Reformation is Biblical individualism, the doctrine that individual Christians are perfectly capable of reading the Bible for themselves with no help from anyone but the Holy Spirit – or at the very most with no human assistance but that of their pastors. Now no one but an extreme theological liberal would be happy with the prospect of widespread radically diverse interpretations of Scripture. This prospect is avoided (in theory) in the Roman church by the concept of a *magisterium*, or teaching authority, that God has granted to his One, Holy, Catholic, and Apostolic Church, an authority that of course extends to matters of Biblical interpretation, the Bible being one of many important things the Church has in her care. A denomination that espouses Biblical individualism, however, must avoid by some other means the danger of ubiquitous conflicting interpretations of the Bible, and it will find a theory about the Bible that minimizes the opportunities for diverse interpretations of a given text – as Biblical literalism of course does – to be very useful. Militant biblical literalism, then, is not simply a product of the doctrine that the Bible is the revealed

Word of God; its other parent is Biblical individualism, a johnny-come-lately in the history of the Christian Church.

To establish the credentials of non-literalism, however, is not to establish its possibility. How can the Bible be the revealed Word of God if, to take one example among many, it says that birds and fish came into existence on the same day, when the plain truth is that there were fish for hundreds of millions of years before there were birds? Well, I don't *know* the answer to this question, but I will do what St Augustine did: I will present an answer which I find plausible and which I am willing to recommend. To do this, I must discuss both the content of Genesis and its formation. These two matters are intimately related, but I shall begin by treating them separately.

First, as to content. Suppose that someone who had never heard of the Bible and had never so much as thought about the beginning of the world were one day to read the book of Genesis and were to take everything it contained in a pretty literal sense and were to believe every word of it. This person would thereby come to believe many true things and many false things. Among the false things there would be two that we have already mentioned: the proposition that the alternation of day and night existed before the Sun, and the proposition that *Aves* and *Pisces* are coevals. We could make quite a list of such false propositions. Here are some of the true ones. That the world is finite in space and time – at least time past. That it has not always been as it is now but has changed from a primal chaos into its present form. That it owes its existence and its features to an immeasurably powerful being who made it to serve his purposes. That it was originally not evil and not neutral as between good and evil and not a mixture of good and evil but simply good. That human beings are part of this world and are formed from its elements – that they were not separately created and then placed in it like figurines in a China cabinet. That the stars and the Moon are inanimate objects and are without any religious significance – that, at least in relation to human beings, their main purpose is to mark the hours and the seasons. That it is not only kings but all men and women who are images of the divine. That human beings have been granted a special sort of authority over the rest of nature. That these divine images, the stewards of all nature, have, almost from their creation, disobeyed God, and have thereby marred the primal goodness of the world and have separated themselves from God and now wander as exiles in a realm of sin and death.

So our imaginary credulous reader of Genesis comes to believe some true things and some false things. The first (but not the last) point to note about the credulous reader's situation is that the true things are much more important than the false things. In fact, the true things are among the most important there are, and the false things are not very important at all. Someone who believes that the Earth came into existence 6,000 years ago is wrong; so is someone who believes that Columbus was the first European to reach North America. For the life of me, however, I cannot see that it is much more important to get the age of the Earth right than it is to get the identity of the first European voyager to reach North America right. I can expect a protest at this point from both the literalists and the saganists. Each will tell me that the question of the age of the Earth is of very great importance. The literalist will say that it is important because a mistake about the age of the Earth could lead one to reject the Word of God, and the saganist will say that it is important because a mistake about the age of the Earth could lead one to reject science and reason. But these protests rest on a misunderstanding. I am talking about the *intrinsic* importance of a mistake in this area, not about its *extrinsic* importance. It is evident that any false belief whatever, however trivial its subject matter, *could* have disastrous

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consequences in special circumstances. We could easily imagine circumstances in which a woman's mistaken belief that her husband had stopped to buy a newspaper on his way home from work led her to suspect that he was lying to her about his movements and eventually destroyed their marriage. And, of course, a false belief about the age of the Earth could lead to a disastrous repudiation of the reliability of something that is reliable and whose reliability is important. It could, in fact, lead one to devote a large portion of one's life to defending the indefensible – as, no doubt, false beliefs about Columbus have done. What I am saying is that the matter of the age of the Earth is of little importance in itself. This is far from an empty platitude. The last few hundred years have seen thinkers who overestimate the intrinsic value of scientific knowledge as absurdly as Matthew Arnold and F. R. Leavis overestimated the intrinsic value of a well-honed literary sensibility. Here is a quotation from the physicist Steven Weinberg (a Nobel laureate) that illustrates the evaluation I am deprecating:

The more the universe seems comprehensible, the more it also seems pointless.

But if there is no solace in the fruits of our research, there is at least some consolation in the research itself. Men and women are not content to comfort themselves with tales of gods and giants, or to confine their thoughts to the daily affairs of life; they also build telescopes and satellites and accelerators, and sit at their desks for endless hours working out the meaning of the data they gather. The effort to understand the universe is one of the very few things that lifts human life a little above the level of farce, and gives it some of the grace of tragedy. (Weinberg 1977, p. 155)

Against this, I would set the following statements of the "great champion of the obvious," Dr Johnson:

We are perpetually moralists, but we are geometricians only by chance. . . . Our speculations upon matter are voluntary and at leisure.

[Scientific knowledge] is of such rare emergence that one man may know another half of his life without being able to estimate his skill in hydrostatics or astronomy; but his moral and prudential character immediately appears.

The innovators whom I oppose are turning off attention from life to nature. They seem to think that we are placed here to watch the growth of plants, or the motions of the stars.<sup>4</sup>

I have set before you a choice of values. If you think that the evaluation of scientific knowledge that is implicit in my quotation from Weinberg is the right one and that Johnson's belongs to the rubbish of history and good riddance to it, you will not believe a word of anything I am going to say. But at least don't mistake my position: I am not saying that science is unimportant; I am only denying scientific knowledge the central place in the proper scheme of human values that Weinberg gives it. I also deny this central place to a knowledge and appreciation of history or music or literature (and, dare I say it, philosophy), each of which is neither more nor less important than scientific knowledge.

My first step in reconciling the thesis that Genesis is the revealed Word of God with the findings of science is, therefore, to contend that what Genesis is right about is of great intrinsic importance and that what it is wrong about is of little intrinsic importance. This contention, however, raises the question why Genesis, if it is the Word of God, is wrong about *anything*. I said that I should discuss questions both of content and of formation. I have said something about content. To discuss the question I have now raised I introduce



some points having to do with the formation of the Genesis narrative – the genesis of Genesis, as it were.

What is the purpose of the first chapters of Genesis? What is their purpose in relation to the Hebrew Bible as a whole? The Hebrew Bible is mainly the narrative of God's covenant relationship with his people Israel. The opening chapters of Genesis are intended to set the stage for the story of that covenant. They are intended to describe and explain the relations between God and humanity as they stood when God made a covenant with Abraham. Thus, Genesis begins with an account of the creation of the world and of human beings, an account which displays God as the maker and sovereign of the world and the ordainer of the place of humanity in the world, and which does that in a way that militates against various disastrous theological misconceptions current among Israel's neighbors and conquerors – as that divinity is divided among many beings whose wills are often in conflict; or that the lights in the sky are objects of worship; or that the image of divinity is present in a few human beings – kings – but not in ordinary people. But then why doesn't Genesis get it right? I say that Genesis does get it right – in essence. W. J. Bryan may have been a fool in many respects,<sup>5</sup> but he had a more accurate picture of the cosmos than Carl Sagan (who, if we may trust the Fourteenth Psalm, is also a fool). Bryan believed that the world had been created by God, and that by itself is enough to outweigh all the matters of detail in which Sagan is right and Bryan wrong. But why doesn't Genesis get it right not only in essence but in detail? Why doesn't Genesis get it wholly right? After all, we expect a reliable source to get even relatively unimportant details right, in so far as it is able, and God knows all the details. The beginning, but not the end, of the answer to this question is that if Genesis did get it right in every detail, most people couldn't understand it. Never mind the fact that only a person with years of rigorous formal training in mathematics can fully understand the current theories about the first three minutes of the existence of the cosmos. Consider only the age of the cosmos: about 14,000 million years. You and I can in a sense grasp numbers like  $1.4 \times 10^{10}$ ; we know how to do arithmetic with them. But how could the age of the universe be conveyed to most people at most times? Suppose the Bible began, "Fourteen thousand million years ago, God created . . ." Suppose you are a missionary trying to explain the Genesis narrative to a tribe of Amazonian Indians. How will you explain these words to them? Will you leave off teaching them about important things like the sovereignty of God till you have taught them about unimportant things like the decimal system? (Do not suppose that teaching them the decimal system will be the work of an afternoon, for there is no basis in their culture for using the kinds of numbers it gives access to.) And most cultures have been like our imaginary Amazonian culture in that respect. A scientifically accurate rewriting of Genesis, therefore, would turn it into something all but useless, for the result would be inaccessible to most people at most places and times. Only a few people like you and me – who are simply freaks from the historical and anthropological point of view – could penetrate even its surface. I wonder how many of us believe, at some level, that God – if there is a God – regards scientifically educated people as being somehow the human norm and therefore regards Amazonian Indians or elementary-school dropouts as being less worthy of his attention than we; I wonder whether many of us aren't disposed to think that if the Bible were divinely inspired it would be written with the preoccupations of the scientifically educated in mind? I will not bother to quote the very clear dominical and Pauline repudiations of the values that underlie this judgment. Everyone is of equal value to God and the Bible is addressed to everyone. A Bible that was made easy for kings to

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understand at the cost of making it hard for peasants to understand would be in violation of this principle – if only because there are a lot more peasants than kings. And, of course, there are a lot more people who could not understand a scientifically accurate rewriting of Genesis than there are people who could.

To this I can expect the skeptic to reply along the following lines:

“That’s beside the point. Of course the universe is so complex – no doubt any *possible* universe would *have* to be so complex – that only a few highly trained people in a few very special cultures could understand a *detailed* account of its origin and development. But the writer of Genesis could have described the early history of the cosmos very *abstractly*. He could have included all of the theses that you regard as “important truths,” and, nevertheless, everything he said about the development of the physical universe could have been true as far as it went. When God inspired the author of Genesis, why didn’t He inspire him to write it that way?”

The answer to this question is threefold. One of the three parts I am not going to explore. I will simply mention it and leave it. I do this because I think it is very important, but that it could not be adequately discussed within the scope of this chapter. It is this: not all the truths that are revealed in Genesis can be said; some (to employ a distinction of the early Wittgenstein) can only be shown. These truths, I believe, truths relating to sin and knowledge, can be shown only by telling a very concrete story. I believe that as a result of knowing the story of the tree of the knowledge of good and evil, I know something important that I cannot articulate; something which could not have been conveyed in discursive prose and which perhaps did not have to be conveyed by a story about trees and a serpent but which certainly had to be conveyed parabolically – that is, by means of *some* story about the actions of concrete, picturable beings.

I pass with relief to the two more straightforward points I want to make. First, that an abstract version of Genesis would have little pedagogical value for most people at most times. Even if it contained all the correct lessons, the lessons would not be learned – or would be learned only by rote, as “lessons” in the schoolroom sense. Secondly, the idea of God’s inspiring Moses (or whomever) to write an “abstract” Genesis purged of all harmless error seems either to presuppose a primitive “dictation” model of inspiration or else to imagine God as purging his revelation of harmless error at a very high cost to the recipients of that revelation. I will illustrate these points with a parable.

Imagine that a doctor visits our Amazonian Indians with the intention of teaching them some useful medicine – say, some elementary principles of first aid and hygiene and anti-sepsis, and such pharmacological lore and simple surgical procedures as they can be trusted with in the absence of continuing supervision. What would be the best way to teach such things? One might give one’s pupils a précis of a medical encyclopedia, deleting whatever material was not applicable to their condition. But this précis, because it was presented in a form that was without model or precedent in their culture, might well be forgotten or ignored or even be sung as a chant to accompany the application of traditional tribal medical procedures. Another, and perhaps more effective technique, would be to revise and purify and extend the existing medical lore of one’s pupils, making use of literary and mnemonic devices indigenous to their culture. In applying this technique, one might simply not bother to correct parts of the existing medical lore that were harmlessly wrong. If one’s

pupils believed that childbirth fever was caused by demons, why should one not teach them that the demons must make their way into the bodies of new mothers via the hands of midwives, and that this path could be blocked by a scrupulous ritual washing before the delivery? If this teaching would lead to the same behavior on the part of midwives as a much longer lesson that involved a (very abstract) introduction to the germ theory of disease, and if the extra time required by the longer lesson were time that could be devoted to a lesson about making effective splints – well, one would have to ascribe a very high value indeed to truth in the abstract to recommend the longer lesson.

This parable has, I hope, presented an analogical case for the pedagogical ineffectiveness of an “abstract” Genesis. It also shows, by analogy, some of the difficulties God would encounter in getting an abstract Genesis into our hands, even granted that it would be advisable to do so. He might, of course, have dictated it, Hebrew word by Hebrew word, to a shining-faced Moses or to some terrified priest in the time of the Captivity. I do not want to say that revelation never occurs in that mode: perhaps the Name of God and the Ten Commandments were delivered to Moses in that way. But it is certainly clear that little, if any, of the Bible has been simply dictated by God: God’s usual procedure has been to use as his instrument of revelation the whole person of an inspired author and not simply the hand that held the pen. If God simply dictated Genesis, then He might as easily have dictated a “pure” abstract version of Genesis as any other. If, however, He proceeded, as He seems usually to have done, by inspiring modifications of the kind of story that it was natural to the author – who must be the concrete product of a particular culture, even as you and I are – to tell, then it would have been a very difficult business to produce an abstract Genesis. Not that anything is too hard for God, but, if God chooses to work with human tools, He subjects Himself to limitations inherent in the nature of the tools.

The human author or authors of Genesis, whatever their historical period may have been, would have had no natural disposition to tell a story like our imaginary abstract Genesis, a story utterly at variance with every model provided by their own culture and every premodern culture I know of. People are not naturally inclined to divest a story they want to tell of the concrete details that give that story its character, and the ancient Hebrews had very concrete minds indeed – as did all their contemporaries. No doubt the continued influence of the Holy Spirit could *eventually* have produced an abstract Genesis. I have no idea how long this would have taken, but certainly longer than it took to produce the concrete, suggestive, effective Genesis that we have. And what would have been the value of this costly thing? Only this: that a few saganists in our own time would have had to find some other excuse to reject the Word of God than its disagreement with the fossil record. I do not see why God, who values any six holders of endowed chairs neither more nor less than He values any six agricultural laborers in ancient Palestine, should have thought the price worth paying.

This completes my outline of the position that I oppose both to Genesiac literalism and to saganism. I shall now, as I have promised, offer critiques of literalism and saganism from the point of view afforded by this position.

To the literalists, I have little to say. Anything I said to them would be based on a premiss that no literalist could accept: that “creation science” is pretty much nonsense. It’s not that it is not science at all, as the rather silly – and certainly politically motivated – Arkansas decision would have it. It is that – in my view, at least – it is very bad science, consisting of contrived, ad hoc arguments and selective appeal to evidence.<sup>6</sup>

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As to the saganists, I can happily accept a good deal of the story they tell about how the world got into its present state. The universe of modern cosmology is a cozy, tightly knit affair, entirely unlike the rather frightening infinite and amorphous universe of nineteenth-century popular science, a universe which, in my view, was not based on the actual content of nineteenth-century science but which was rather an ideological construct put together for the express purpose of making theism seem implausible. The nineteenth-century cosmos was made infinite and amorphous so that anything might happen in it given sufficient time. It was made eternal to ensure sufficient time – and, of course, to avoid awkward questions about where it came from. But the lovely universe the late-twentieth-century cosmologists have given us is as tidy and peculiar and homely as the medieval *mundus* of crystalline spheres.

I cannot, of course, accept the saganists' statement that the cosmos is all that is or was or ever will be. (Nor can I accept the fatuous attempt of the Deists to append a Creator and Voyeur to the saganists' cosmos.) From my point of view, the cosmos depends from moment to moment on the sovereign power of God who is infinitely greater than it, and it would vanish, all in a moment, like a candle flame in a high wind, if He were to stop supplying it with the power to continue to be. And I believe that the Lord and sustainer of the cosmos, the only helmsman of the wide and single stars, the faithful guarantor of the laws of nature, has become locally involved in his creation in a special way, and that, as a result, a man has risen from the dead and many other miracles have occurred.

So I differ from the saganists on two points at least: the cosmos does not exist on its own, and the power that sustains it sometimes manifests its sustaining presence in ways radically different from the norm (that is, there are miracles). Now if I differed from the saganists on only these two points (and on such closely related points as the imminent end of the Church), they and I could accept pretty much the same science. Whether the world depends on a power outside itself, and whether there are miracles are not questions to be decided by science. (I do not of course deny that if science can provide a convincing natural explanation for a hitherto mysterious event, then that is an important piece of evidence that must be taken into account by anyone who is trying to determine whether *that event* is a miracle. But this point has almost nothing to do with the question whether there are miracles.) Thus it would seem that on one point at least the saganists and I agree against the literalists: we accept the same science, or, at least, they and I are no more likely to disagree about science than are any two saganists. And this is largely true. The only important exception is that one component of Darwinism that I discussed at length in the first chapter, the thesis I called "Allism." But that thesis, I suggested, has no real scientific basis: its primary appeal lies in the anti-theistic implications that it is (wrongly) supposed to have.

### Notes

- 1 *The Book of Common Prayer: According to the Use of the Episcopal Church* (New York: Seabury Press, 1979). The first statement (p. 526) is from the Form for the Ordination of a Priest; the second (p. 877) is from Resolution II of the Lambeth Conference of 1888; the third (p. 853) is from the Catechism.
- 2 Augustine's views on Genesis are found in his *De Genesi ad litteram* (On Genesis according to the Letter). The title of the standard English translation (Taylor 1982) is *On the Literal Meaning of Genesis*. The "literal meaning" of the English title refers not to what we would today call "the literal

meaning of the text" but to what I have called "the literal reality behind the non-literal mode of presentation." To read an inspired text *ad litteram*, for Augustine, is to read it with an eye toward discovering what its human author intended to convey; one could also read an inspired text *allegorically*, with an eye toward discovering types or foreshadowings of persons or events of later sacred history (which, if they are objectively present in the inspired text, were presumably unknown to its human author). In the discussion of Augustine in this chapter, I use the word "literal" in its customary present-day sense. In this discussion, I have drawn heavily on Ernan McMullin's editorial introduction to McMullin (1985). In this account of Augustine's views, I have glossed over several important matters – such as the relation of the timeless reality of God to the unfolding temporal processes of the created world – that are irrelevant to our purposes.

- 3 Lewis (1958), p. 92. No citation is given.
- 4 Quoted in Aeschliman (1983) 25–6. The quotations are from Johnson's essay "Milton," in his *Lives of the English Poets*.
- 5 But not nearly so big a fool as the character who represents him in the almost wholly fictional movie *Inherit the Wind*. The popular account of the Scopes trial is one of the two great legends of the saganist history of Darwinism, the other being the story (as it is usually told) of the confrontation between T. H. Huxley and Bishop Wilberforce in 1860. Of course, each of these legends, like Piltdown Man, was put together from pieces of real things.
- 6 This is well documented in many publications. Van Till et al. (1988) are as good as any.

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