

10 The Bible and science

Our very young daughter was puzzled. 'I can't believe my eyes!' she exclaimed. 'I can only believe my toes!' She was experimenting with words, of course, as children will. But have you considered what a predicament we would be in if we could not believe what our eyes tell us? The world around us would be nothing but a web of deception.

This chapter is very much about believing our eyes. How much can we trust the evidence of our senses? What picture of the world do they present us with?

There are people whose work entails using their eyes to investigate the kind of world in which we live. They are, of course, scientists. Much has been written about the conflict between science and faith. It is unfortunate that there has been such a bitter opposition between those exploring the creation of God and those exploring the God of creation. There has been distrust on both sides, but especially on the part of Christians who have found themselves with their backs to the wall, apparently dreading each new discovery, and ready to contest scientific findings as if they were the work of the enemy.

Truth is not two-faced; it is consistent and does not lie. It is not seemly for scientists and Bible students each to try to pull things their own way like bedfellows pulling the blankets off one another. It is my hope here that I might help Christians to understand the way scientists work, and to see that there need not be such conflict between science and the Bible.

The surprising thing is that such a state of affairs should have come about. In past centuries many of the leading scientists were committed Christians.

Michael Faraday, an experimenter who made pioneer discoveries on the relation between electricity and magnetism, was a faithful member of a Bible-believing group, the Sandemanians, and testified of his own relationship to Christ.

James Clerk Maxwell, a brilliant theoretician who formulated the laws of electromagnetism, surrendered his life to Christ as Saviour whilst a student and spent hours reading his Bible.

Lord Kelvin, a developer of the Second Law of Thermodynamics, whose name is now immortalised in the absolute temperature scale, had a personal faith in Christ based on the Bible, which was his pillar throughout life.

Sir James Young Simpson, who discovered chloroform, was once asked what his greatest discovery was. 'When I discovered Jesus Christ as my personal Saviour,' was his reply.

So the list could go on. There are many scientists today who make no secret of their faith in Christ. 'The heavens declare the glory of God; the skies proclaim the work of his hands,' declares David (Psalm 19:1). There can surely be nothing wrong

in exploring the heavens and the earth and thereby tracing God's handiwork. In fact, rightly understood, these things point to God the Creator (Romans 1:20).

Scientific method

Scientists work according to certain principles which need to be understood before we criticise their findings. This is to some extent the 'basis of faith' for scientists, and needs to be taken on trust by those setting out on a scientific career.

Scientists for the most part believe (though they cannot prove it) that the universe is **rational** and **homogeneous**. The universe is supposed to be rational in that it works according to certain fixed laws which are there to be discovered. It is supposed to be homogeneous in that the laws work the same for all time and in all places. Without such assumptions the work of scientific discovery would be well nigh impossible. Christians will presumably have no difficulty accepting these assumptions, because this is the way that a God of order and reason would be expected to work.

The method normally followed by all scientists is in two parts. The first part is to gather data which provide evidence of how nature works. The other part is to seek to condense the data into laws which adequately describe them. So the two parts of this process are (a) gathering data and (b) formulating laws. The laws should be as simple as possible, and yet describe the data fully. Sometimes a law is thought of first, and experiments are then carried out to see whether data can be found to substantiate it. Sometimes the data are found first, and a law is then sought to explain them. Often the two processes of data gathering and the formulation of laws go hand in hand.

A law is sometimes referred to as a theory, but there does not seem to be a consistent use of the terms 'theory' and 'law'. One should not suppose that because a certain idea is termed a 'theory' that it is any less firmly held by scientists than a 'law'.

Any law which is postulated should be **testable**. It should be possible to carry out once again the experiments which appeared to support this law, and when these experiments are repeated they should yield the same results.

It should also be possible to carry out further experiments, which will show whether or not the law is still applicable under new conditions. The law should be **productive** in the sense that it should suggest new tests which could be carried out which will confirm or deny the validity of the law.

A law should preferably be expressed in **mathematical** terms. Mathematics is the handmaid of science, and scientific laws may most conveniently be represented by mathematical formulae. This need was expressed by Roger Bacon (c. 1220 - c. 1292), who was not only a scientist but also a Franciscan Friar.

One thing which Christians sometimes find hard to understand is that the 'laws' of science are not fixed and unchangeable. A law may cover certain data, but further experiments may produce data which the law does not explain. Then a new law

needs to be drawn up, and the old law revised or abandoned. This is the nature of science. Any law should be **falsifiable**, that is, it should be capable of being proved false, given the right evidence. Scientists being as they are, human like the rest of us, there is sometimes great reluctance to abandon an old law for a new one, despite the evidence which is amassed to show that this is needed. However, true science should always be ready to change in order to be true to the data.

False science tries to uphold a certain viewpoint irrespective of the facts; true science is always open to the truth. As Christians we ought to honour such an aim. In handling the Bible we also should follow the same desire for truth rather than to justify and preserve our interpretations or traditions in the face of much evidence.

An example

An example might serve to show how scientists have investigated events, accumulated evidence, formulated laws which cover the evidence, and then revised the laws.

Over the centuries people observed the sun, moon and stars. The sun appeared to rotate round the earth once per day. Some stars (the 'fixed stars') appeared to rotate round the earth almost once per day, but the sun moved past them over a one-year period. The moon also appeared to rotate round the earth once per day, but shifted its position and appearance over a four-week period. Some 'stars' had a more peculiar motion, sometimes almost travelling with the sun and other stars, and at other times moving backwards or forwards against the background of stars. These were called 'planets', meaning 'wanderers'.

The law which they constructed to explain the data was as follows. They supposed that the earth was surrounded with various transparent spheres to which the heavenly bodies were attached. These spheres rotated round the earth at different speeds. The fixed stars were attached to the outermost sphere, and the moon was attached to a smaller sphere which rotated slightly faster. The earth was at the centre of these spheres.

And what about the planets? This was a much harder matter. It was believed that only perfect entities were fitting for the heavens. (Note that this was a part of scientific method at the time which was later abandoned.) Spheres are perfect, so any explanation must be in terms of spheres. The theory was therefore modified for the planets. The basic sphere for any planet had, at one point on its surface, another sphere, also rotating. This second sphere may have another sphere attached to it, and so on. The planet was situated on the surface of one of the subsidiary spheres. With the right diameters and speeds of rotation for each sphere, the motion of the planet could be described. This was the theory propounded by Ptolemy in the 2nd century AD, and so was known as the Ptolemaic theory.

It was, however, a very cumbersome description. It was partly necessitated by the views that (a) everything rotated round the earth and that (b) only spheres were suited to the explanation. As more detailed information on the motions of the

planets came to hand, yet more spheres attached to spheres attached to spheres had to be postulated.

In 1543 Copernicus published his theory that the planets rotated around the sun, and so did the earth. The earth rotated on its axis once every 24 hours, which made it appear that everything in the heavens was rotating round the earth. This theory made the description of the universe very much simpler. Galileo helped to confirm this theory when in 1610 he saw four moons orbiting Jupiter. So not everything rotated round the earth after all.

Further investigation modified the Copernican theory and built on it. Kepler showed that the planets did not travel in circles, but in ellipses. Newton formulated the laws of gravitation which underpinned such motion.

Einstein showed that Newton's laws of motion and gravitation were only approximate, and replaced them with the laws of relativity which covered phenomena which Newton's laws could not explain. Newton's laws of gravitation in particular were eventually superseded by Einstein's General Theory of Relativity. This also replaced Newton's concept of bodies attracting one another by inexplicable action at a distance. Instead, massive bodies were supposed to cause distortions in space-time, and other bodies were deflected in their paths by these distortions.

The result has been a succession of theories or laws, each one describing observed data which the one before could not. Sometimes this has been achieved by means of a simpler law; sometimes the newcomer has been much more complicated. However, the whole process has been one motivated by discovering the truth and formulating the laws which the created universe obeys. Those of us who believe in a creator God must surely believe that these are (at least approximations to) the laws which he laid down. Scientists have sometimes considered their task as 'thinking God's thoughts after him'.

The sun stood still

Before we tackle the thorny subjects of creation and evolution, we will consider a passage from which there is much to learn, and which has been in the past a battleground between scientists and Christians.

The passage concerns Joshua's attack on the nations assaulting Israel's ally, Gibeon (Joshua 10:12-14). When Joshua was pursuing the fleeing Amorites, he prayed, 'O sun, stand still' (v. 12). The record continues, 'So the sun stood still' (v. 13).

How are we to interpret this passage? If we apply the principles of Chapter 2, we see that this is a descriptive passage in the middle of a book which sets out to be historical. God answered Joshua's prayer and intervened with a miracle which lengthened by one day the time which Israel had for effectively pursuing their enemies. We have no reason to accept these verses as other than describing an actual physical event. But what was that event?

Various possibilities have been advanced. If the earth stopped rotating, everyone on it would have been flung forward at a speed of several hundred miles per hour, and the effect on the oceans would be to produce a tsunami which would make the Amorites the least of Joshua's worries. Darkness lasting 24 hours (the sun not appearing) would hardly assist the pursuit, though a hailstorm (v. 11) would certainly imply heavy clouds and diminished light.

I have to say that I do not know how to interpret this passage. One of the principles suggested at the end of Chapter 2 was 'Be prepared to admit your ignorance.' Well, at this point I am admitting mine. We then have to ask, 'How much does it matter?' The way in which God performed a miracle lasting 24 hours does not really make much difference to us.

There is, however, something which makes a profound difference. Some have said that these verses prove that the sun rotates round the earth, and not the other way around. This is a statement, not about the miracle lasting 24 hours, but about our everyday situation.

The Copernican theory was published a few years before the death of Martin Luther. When Luther was told about the theory, his immediate reaction was that it could not be correct, because Joshua had commanded the sun to stand still, and so it must be the sun that moves.

One of the principles outlined in Chapter 2 was 'Consider the context of the world around us'. An examination of the world has led to the conclusion that the sun does not go round the earth each day. Since the time that Ptolemaic theory was current, we have discovered that there are stars and galaxies at extreme distances from the earth. If we reverted to that theory, we would now be faced with the problem of all these stars and galaxies travelling round the earth once every day.

Earlier in this chapter we described how scientists believe that the universe is rational, working according to laws which may be discovered and described mathematically. This basis of science seems just what we would expect if the universe had been created by a rational God, so it seems that this basis should be readily accepted by Christians.

Modern theories of cosmology are based on testable laws such as gravitation (or General Relativity), which are now well-established. The simplest explanation according to these laws is that the earth (which is lighter) rotates around the sun (which is much more massive). If the whole universe revolved around the earth once per day, we would have no such laws to explain the forces acting on far distant bodies travelling round us at such speeds. The universe would appear to be a nonsense.

Even though we may be convinced that the apparent motion of the sun is in fact due to the earth's rotation, we still speak about 'sunrise' and 'sunset'. We would be extremely pedantic to talk of 'that time when, due to the earth's rotation, we are first able to see the sun above the eastern horizon'. 'Sunrise' is a much simpler term. Similarly, when we travel fast in a vehicle we may refer to things outside 'speeding

by us'. This is not to say that we consider that we are still and the whole world is moving past us. It is simply that language is very often used in this way.

I suggest that in the passage in Joshua language is being used in a similar way. Would it be sensible to turn the whole universe inside-out and upside-down simply because of the words used in this verse?

Conclusion first, evidence later

The principle 'Consider the context of the world around us' means that, when you are seeking to interpret a Bible verse, you need to consider also what the world around you is like. The trouble is that some Christians turn this the other way round. When seeking to find out what the world is like, they consider first what the Bible says, or rather, what they think the Bible says. Usually it is a case of imposing a literal interpretation of the Bible on the world around. The universe, they conclude, was made in six literal days. It is no more than a few thousand years old.

Having come to such conclusions based on their interpretation of the Bible, how are they to deal with the evidence which is continually being discovered? One size of shoe will fit all feet provided that you are prepared to push hard enough. Evidence must be forced to fit the conclusions already arrived at, instead of letting the evidence speak for itself. The impression is 'My mind is made up: don't confuse me with facts.'

This highlights the difference between the scientific approach (gathering data which provide evidence of how nature works and condensing the data into laws which adequately describe them) and the 'creationist' approach (arriving at a conclusion based on a literal interpretation of the Bible and then seeking to show that all data fits this conclusion).

The latter may result in a refusal to believe the evidence of one's eyes. In seeking to give the highest credit to the Bible by interpreting it ultra-literally we may be in danger of bringing discredit on God for creating an anarchic universe.

The creation

You may not have any difficulty in accepting that the earth rotates around itself once per day, which gives rise to the false impression that everything rotates round the earth. However, what has been said about 'the sun standing still' in Joshua 10 will serve as an introduction to more difficult matters where the Bible appears to clash with science in sharper ways.

The subject of the creation of the world has become a highly contentious one for Christians. You may not be convinced by what I present here. The decision as to what you believe is, of course, entirely yours. All I ask is that you hear my arguments, so that you may at least understand how some Bible-believing Christians arrive at their conclusions. One thing I want to make very certain. I personally believe that God created the universe and all it contains. It seems to me a pity that those who hold one particular view of the way creation happened should

have cornered the term ‘creationist’. I may not share those views, but that does not prevent me from being a ‘creationist’ in the wider sense of the term.

The scientific standpoint on the origin of the universe has been confirmed by increasing evidence over the years. We look out on our own galaxy, the Milky Way, containing around 100 billion stars (of which our Sun is one). The Milky Way is about 100,000 light years in diameter. (A light year is the distance which light travels in one year, and is 5,880 billion miles, or 9,440 billion kilometres). Many other galaxies may be seen, some of them billions of light years away. There may be more than 100 billion galaxies in total.

One fact has become apparent for astronomers. The further galaxies are from us, the faster they are travelling away from us. This does not mean that we are in the centre of the universe. Imagine a balloon with spots on it being blown up. As the balloon gets bigger, the spots get further apart, although no one spot may be said to be at the centre of the movement. This kind of thing seems to be happening with the universe.

Now imagine winding time back, like a film which is projected backwards. The galaxies all rush towards one another. If this continued unchecked, there would be a time (in the past) when they were all competing for the same place.

This has led scientists to suppose that the universe began in a gigantic explosion which they call the ‘Big Bang’. The best evidence so far points to an instant approximately 13.7 billion years ago. Since then everything in the universe has been flying apart. The more evidence which is accumulated, the surer scientists become that this is the way the universe began.

The age of the universe

Scientists and Bible-believing Christians alike believe that the universe has not always existed, but came into being at one instant. You would think that Christians would be glad that science has at last come to agree with them on this matter. Very often, they draw no comfort from the Big Bang. The differences are now no longer about a definite start for the universe, but about when it happened.

If a galaxy is estimated to be one billion light years away, then light from it has been travelling for one billion years before reaching us. We are seeing that galaxy not as it is now but as it was one billion years ago. So on the basis of this one galaxy the universe as a whole would seem to be at least one billion years old. As we have seen, scientists have been narrowing down their estimate of the time of the Big Bang. It seems now that 13.7 billion years ago is the most likely figure.

Some Christians are convinced that when Genesis chapter 1 speaks of a creation in six days, these must be taken literally as days of 24 hours duration. If this is so, then a necessary consequence is that the universe is not very old. By adding up the ages at which parents in the Bible had children, Archbishop Usher concluded that the earth was created in 4004 BC. Unfortunately, the ages as recorded in the Hebrew Bible differ from those in the Greek version of the Old Testament (the Septuagint).

However, one would suppose that if the days in Genesis chapter 1 are indeed literal, the earth is not much more than, say, 10,000 years old.

Some have suggested that the earth was created just a few thousand years ago *looking as if* it were much older. We need to consider this idea closely. Let us suppose that the earth was in fact created 10,000 years ago. In that case, when we look out at the night sky, stars which are less than 10,000 light years away are truly there; we are seeing light which originated at those stars. In the case of stars which are further away, we are not seeing light from real stars, we are seeing light which was created 10,000 years ago *looking as if* it was coming from real stars.

You may have seen an advertisement, say, featuring bottles of perfume. These are in a regular array which appears to go back in the distance to infinity. However, on closer inspection you see that only the bottles in the foreground are real. The rest are painted on the backdrop. Is this what the universe is like?

Such an idea would certainly run counter to the scientist’s assumption that the universe is homogeneous. Part of the universe would be real, and part an illusion. It would also deal a heavy blow to the idea that the universe is rational. We cannot believe the evidence of our eyes. The universe would then be so set up that when we consider the evidence we are led to the conclusion that the universe is very old, but this is just an illusion. Some might think that one could no longer say that ‘The heavens declare the glory of God’: it seems that the heavens represent the biggest fraud ever perpetrated.

A reconciliation

The Bible account of the creation and the scientist’s description may easily be reconciled. When interpreting Genesis 1 we need to use the principle, ‘Consider the context of the world around us.’ In the light of that, we interpret the days not as periods of 24 hours, but as epochs.

Are we doing violence to Genesis 1 if we interpret it in this way? Let us look at that chapter in the light of the principles outlined in Chapter 2. In particular, let us consider the passage within the context of the rest of the book. From Genesis chapter 4 on to the end of the book the material is presented as a historical record of people, which we would expect to take as historical fact. The first three chapters are somewhat different. (This is not to say that they are any the less true.)

For one thing, we seem to have two different accounts of creation. Genesis 1:1–2:3 depicts creation in seven days, culminating in the creation of plants, animals and finally mankind, male and female. Genesis 2:4–25, on the other hand, describes the creation of Adam before any plants had appeared (v. 5), then the creation of the animals (vv. 19–20), then the creation of Eve (vv. 21–3).

Some have suggested that chapter 1 describes the creation in the universe at large, whereas chapter 2 covers what subsequently happened in the Garden of Eden. This seems less than satisfactory. God formed Adam just before he planted the garden (2:8). Creating mankind, male and female, first (in Genesis 1), and then

creating Adam in the garden (in Genesis 2) would surely mean that many men and women would not be descendants of Adam and Eve, but would precede them.

I believe that both accounts of the creation are true. This must mean that one or other of them, or both, are to be interpreted figuratively in some respects. They appear to be showing us different aspects of God's creation. Perhaps chapter 1 is showing us the order in which things were created, and how man is the summit of that creation, whereas chapter 2 is showing us the inter-relations between parts of that creation, and how no animal can satisfactorily be man's partner in the way that his wife can.

We need to look at the beginning of Genesis in the light of the New Testament. We have seen in the previous chapter that the Sabbath appears in the New Testament (and even in Christ's words) as the current age. Could not the first six days of creation also be ages?

It appears that to interpret Genesis 1 in the light of ages rather than days does no violence to the Bible. If, on the other hand, we insist that the universe was created in six days of 24 hours, the violence which we do to our concept of a rational, homogeneous creation is devastating. My opinion on this is obvious. What is yours?

The Theory of Evolution

If there is one aspect of science which causes even more problems for Christians than creation it is the Theory of Evolution. Ever since Charles Darwin propounded it, this theory has unfortunately been a rallying point on the one hand for those who want to bring discredit on the Bible and on the other hand for those who want to bring discredit on science.

At the outset, one misunderstanding must be corrected. Sometimes Christians will claim that the term 'theory' means that these ideas are far from being accepted by scientists at large. This is erroneous. As we said earlier, scientists use the terms 'theory' and 'law' almost interchangeably. A 'hypothesis' or 'conjecture' is something which still needs evidence to give it respectability. Not so a theory. Though in ordinary parlance we may say, 'Oh, but that's just a theory!', this is not the way scientists commonly use this term. The Quantum Theory or the Special Theory of Relativity, to name but two, are some of the best attested collections of laws to be found.

The case for evolution

There are currently millions of species of living things in the world. Have these all been separately created? The Theory of Evolution is, in a nutshell, that all living things have developed ('evolved') from a single original living form. Over millions of years all different species have been derived in this way.

Changes can be seen in living things. Mankind has bred dogs differing in kind from the Chihuahua to the St. Bernard. Bacteria develop immunity to certain antibiotics.

If one compares the skeletons of creatures with backbones (vertebrates), corresponding bones and structures are apparent. The flippers of whales and the wings of birds show the same bone structures which appear in the bones of our arms and hands, for instance. Sometimes apparently useless structures correspond to useful structures in other creatures. Some snakes, though possessing no limbs, nevertheless have bones which correspond to hips, for instance. Such structural evidence points to a common formation, and so possibly a common ancestry.

The fossil record adds the time dimension to the evidence. When fossil remains of animals are dated (such as by radioactivity), creatures appear to have developed as a tree of species. Some branches have become extinct (the dinosaurs being the best-known of these), whilst others appear to have moved through various changes towards species known today (of which the horse is a good example). Such a tree cannot be traced fully through the fossils, but although the detail may at times be incomplete, the pattern is evident.

In recent years genetics has added extra evidence. The nucleus of each cell contains long molecules of DNA (deoxyribonucleic acid). These comprise most of the information needed for building and running the organism. These molecules are divided into strings called chromosomes. Along the chromosomes are segments of information known as genes. Each gene is responsible for a certain activity, often for the manufacture of a particular protein.

It has been found that the closer one would assign creatures on the tree of evolution, the greater the number of genes which they have in common. However, particular genes may be common to a large number of species, so that a bacterium and man share many genes which perform the same function in both. Once again, a common formation is indicated, which may be taken as evidence of a common ancestry.

Because of evidence such as this, it is now almost universally accepted by scientists working in this area that all species evolved from a single common ancestor.

The case against evolution

Why is it that the Theory of Evolution has had such a bad press from many evangelical Christians? There are several reasons for this.

If evolution has indeed happened, then one consequence must be that the earth is many millions of years old. The processes of evolution do not happen overnight. Christians who believe that Genesis 1 may only be interpreted literally (as a creation in seven days of 24 hours) cannot accept that the universe is so old. Therefore the evolutionary theory is seen as opposing Biblical doctrine. As we have seen above, cosmology gives us evidence for a universe which is billions of years old. Perhaps this would have given adequate time for evolution.

The Theory of Evolution has no adequate explanation for the fact that man is so different from all other creatures. This might be considered a matter of man being

simply 'more than' the animals. Some animals are intelligent, but man is more so. Some animals use sound signals, but man's use of language is more complex. However, many people would not be satisfied with an explanation merely based on matters of scale and degree. In some areas man is fundamentally different. Man has a moral sense. As Mark Twain said, 'Man is the Only Animal that Blushes. Or needs to.' Man may also display an appreciation of God; the faculty which Christians would term the soul or spirit. Man is not just an animal 'only more so'. He is an animal but not just an animal. If evolution happened, then it seems that God did an extra work of creation in enduing two primate individuals with souls.

One other aspect of evolution is unacceptable to most Christians. This is the idea that man is on an evolutionary journey which will make successive generations better and better. This concept was popular in the early twentieth century, but two world wars have served to dent it. It should be pointed out that this is a sociological idea which does not necessarily form part of the scientific Theory of Evolution. Sociologists have also tried to use the Theory of Relativity to show that moral values are relative, but this is false science, not truly science at all.

Because of the repugnance which some Christians have developed towards the Theory of Evolution, there have been many attempts to discredit it which are hardly fair. Attempts have been made to squeeze all the discovered history of the universe into several thousand years, even supposing in certain instances that the speed of light has varied enormously. Attention has been focused on the inaccuracies of dating by means of radioactivity, but there has usually been a failure to point out that such inaccuracies cannot be used to bring the timescale anywhere near the desired thousands of years. The small amount of anomalous fossil evidence has been given exaggerated prominence without regard to the huge and growing bulk of evidence for the evolutionary theory.

It has even been said that this is 'an ungodly theory'. I do not know what this can mean, unless people are contending that it goes against the inflexible interpretations of the Bible which they hold, and therefore must be ungodly. But what if God chose to use this method to create the species? We would then by our interpretation be asserting that the method God used in his work was an ungodly method, which is surely blasphemous.

The Bible and evolution

It is not impossible to harmonise the Bible account of creation and the Theory of Evolution. In doing so, it is necessary to realise that the Bible is not intended to be a manual of science. Its purpose is to bring God's message to mankind. What profit would it have been to the ancient Israelites to have been given a detailed description of the origin of species?

What we can expect, however, is that the two accounts, that of the Bible and that of science, should not be incompatible. For that to be the case, both the Bible and science have to be sympathetically interpreted.

Genesis chapter 1 contains a description of the emergence of different forms of life which is remarkably in agreement with the Theory of Evolution. Plant life appeared first (vv. 11–12). Animal life in the water (vv. 20–2) preceded animal life on land (vv. 24–5). Man was the latecomer on the scene (vv. 26–7). The only major disparity is that of 'birds' appearing before animal life on land (vv. 20–2), but this is not an insuperable obstacle if one interprets this as 'flying things', i.e. flying insects.

From the Bible we find that man is different from the beasts, as we noted above. When God formed man, he made him from 'the dust of the ground' and 'breathed into his nostrils the breath of life' (Genesis 2:7). Man's body is not specially distinguished from that of all other animals, but his spirit is.

This description does not rule out the possibility that man's body was in line of descent from the bodies of the creatures which had preceded him, but that God performed a special act of creation for man's spirit. This view is encouraged by the Hebrew of Genesis chapter 1. The word 'create' (Heb. *bara*) is used only in verses 1, 21 and 27. Elsewhere the word used is '*asah* 'make'. This distinction is preserved in the New International Version. If we are right in seeing a distinction between these words, they would indicate a special intervention by God in the case of the first animals and in the case of man.

In all of this, it is only possible to harmonise the words of scripture with the findings of science if we interpret the 'days' of Genesis chapter 1 figuratively. Cosmology also requires this. This for some Christians is the sticking point. However, it must be pointed out that the clash then between the Bible and science lies not in what the Bible says, but in how strongly we cling to one particular interpretation.

Intelligent Design

In recent years there has been another attack on the Theory of Evolution by Christians who are also scientists. They have pointed out that evolution can only conceivably operate if at every stage of development what was produced could operate usefully. A complicated structure could not have originated by natural selection in one jump. It must have evolved by a series of small changes.

It has been pointed out that the flagellum (a whip-like whisker) by means of which some bacteria move around is a very complex structure. It is hard to imagine that it could come about by means of small incremental changes. Therefore, say these scientists, this is evidence of an intelligent designer (God?) who made the change.

It should be pointed out that Creationism and Intelligent Design are poles apart. The creationists, intent on interpreting the Bible literally, deny a great deal of the evidence which scientists have discovered about the universe. The proponents of Intelligent Design, on the other hand, accept the scientific evidence, and agree that evolution explains much of what has happened in the origin and development of different species. They would simply focus on those areas where the Theory of

Evolution has difficulty, and would say that these areas constitute evidence for a supernatural designer.

Those who have read about the clash between science and Christianity in the last century may here feel a sense of *deja vu*. In the early twentieth century there were attempts to see God's hand in the universe. These were known as 'the God of the gaps'. If you see that scientists have difficulty in explaining anything, then postulate that God must have done it. Unfortunately, when scientists do manage to discover a material explanation for the phenomenon, then 'the God of the gaps' is diminished in scope.

If someone really did demonstrate that the material universe gives evidence of a supernatural designer, then he or she would probably win a Nobel prize. But such a demonstration needs to provide positive evidence, not just the negative assertion that scientists have not yet discovered an adequate explanation.

Conclusions

When the findings of science are harmonised with the words of scripture, an astonishing fact stands out. It is not the case that the Bible and science are at loggerheads. It is not even the case that they each address their own area and do not impinge on one another. It is that the Bible and science in part travel the same road together.

The concept of the Big Bang tallies with the Bible: God at a point in time created the heavens and the earth. The order of appearance of living things in Genesis 1 corresponds very well with the geological record.

The desire of some Christians to cling to an interpretation of the Bible which is as literal as possible has led to an unedifying situation. Attacks are made on what is seen as weak points in the scientists' arguments. This in itself is perfectly valid, and is done by other scientists as part of their work. However, scientists seek to replace what is deficient by another theory which covers all the evidence. I have not seen any such thorough-going alternative theory advanced by those who dispute science on the basis of the Bible. A guerilla fighter seeks to snipe at particular vulnerable points, but his aim is simply destruction, not the rebuilding of society. Some Christians seem to snipe at science in a similar vein.

Sadly, some Christians seem ready even to find solace in conspiracy theories, accusing non-Christian scientists of deliberately distorting the evidence so as to force conflicts with the scriptures. This idea ignores the fact that the basis of science is to let the evidence dictate the shape of the theory, not to ram the foot into a shoe of the wrong shape. It also ignores the fact that many scientists are themselves Bible-believing Christians.

Science should not contradict the Bible. After all, scientists are simply investigating the universe which was made by the God who authored the Bible. Though God may overrule the laws of nature in order to work a miracle, normally

those laws are in effect. Science may well contradict our *interpretation* of the Bible, however.

I suspect that some Christians have deeper problems. It is not just that they are antagonistic to scientists, suspecting them of a plot against Christianity. It is not just that they have an aversion to scientific theories, suspecting them of contradicting the Bible. It is perhaps that they have a quarrel with science itself. Investigating the way the world works seems to them an invalid pursuit, because it may produce ideas which run counter to their literalistic view of the Bible. This is why they seek to oppose theories which are trying to explain the data in a reasonable way.

We have two choices before us. We can persist in our interpretation, and insist that it is the universe which looks the wrong shape. Or we can, as suggested in Chapter 2, 'Consider the context of the world around us' when we investigate how to interpret the Bible.

Which seems the better way to you?