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Has Christianity a Vested Interest in the Outcome of Experimental Research ?

AT one time it was generally agreed that the Bible, as the infallible word of God, taught good science as well as good theology. If it spoke of a universal flood, then it was up to geologists to explain the main features of geological formations in terms of this catastrophe; if it taught that God created life, then it was up to science to show that, however hard man might try, he would never synthesise life in a test tube; if it spoke of the sins of the fathers being visited on the children, it followed as a scientific fact that evil habits were inherited.

Today such teaching is unorthodox. In the main Christian opinion has swung to a precisely opposite point of view. To quote Alan Richardson, 'It is no longer supposed that there is a cosmology revealed in the Bible which may be either proved or disproved by scientific research'¹—and the words would doubtless be considered applicable to all branches of science.

The Bible, we are told, was not written to satisfy man's curiosity or to tell him what he can find out for himself. Christianity has no vested interest in science: it cannot by its very nature tell us if other planets are inhabited, whether the universe is large or small, whether creation started at a point in time or is continuous to the present day, whether life was created or is a development of the interplay of natural forces. All scientific theories are equally compatible or incompatible with Christianity, just because Christianity is not concerned with science.

It has a familiar ring, this swing of the intellectual pendulum. One extreme; then its opposite. But then, quite often, there comes a synthesis—there is something to be said, after all, for *both* points of view.

Can the same be true about the relation of Christianity to science, we wonder? The current view is understandable enough, for it is obvious that the Bible is no scientific textbook. But what of the earlier view. Must we dismiss it *in toto*, or can it also enshrine an element of truth?

¹ *The Bible in the Age of Science* (S.C.M., 1961), p. 29.

Let us ask quite deliberately: Can Christianity ever predict the result of a scientific investigation? The earlier view implied an answer *yes* to this question, whereas the view often accepted today requires an equally emphatic *no*.

Suppose I say that, according to a particular *scientific* theory, the result of a certain experiment will be so and so. Just what do I mean? I mean, of course, that this is what I anticipate. But I make no claim to 100 per cent certainty. I know well that, on occasion, observation has seemingly supported the false theory or has discounted the one that is true. Unexpected complications make prophecy hazardous.

In the same way, a Christian who holds the earlier view need not be over-dogmatic. His theory—the theory that the author of nature and of the Biblical revelation are one—may lead him to *expect* that scientific discovery in a certain field will follow a certain course, but dogmatism in individual instances is uncalled for. Nevertheless, as in science, it would be true to claim that on the whole the rightness of a theory will correlate with right predictions.

So the answer to a common misunderstanding is at once apparent. It is said that if a young man pins his faith on Bible science, his faith will be shattered each time predictions prove wrong—shattered, even, by such trivialities as an extra-intelligent chimpanzee or the discovery of men on Mars. But to argue thus is as fallacious as it would be to argue that Dalton's atomic theory is overthrown by the discovery that chlorine hydrate is non-stoichiometric.

It is here, perhaps, that many theologians in the past became muddled. Unwarranted dogmatism about astronomy, geology, evolution, and genetics was followed by the feeling that science had let Christianity down. So many Christians (or their successors) abandoned the view that, in principle, theology can predict the course of scientific discovery and came to their present curious viewpoint. (Curious, because if you believe that the same God who created the Universe *also* revealed Himself in the Bible, then you must surely think it odd that God was astonishingly careful never to drop the least hint that He knows more about His universe than man does. Rather like a cosmic Lewis Carroll writing a Wonderland story, but with never a hint that he knows more about mathematics than do ordinary mortals!)

So we see that the newer view would never have taken shape were it not for the fallacy that you can, by thinking, work out, with 100 per cent. certainty, what the consequences of a theory will be. This assumption is itself the relic of a bygone mode of thought, inherited

from days in which the Universe was considered to be so simple that any philosopher could plumb its depths from an armchair. The situation is different today. The universe has turned out to be of vast complexity, and one part interacts with another in a thousand subtle ways. We may always *expect* that the results of our theory will be so and so, but we can never be quite sure.

Once abandon the claim to certainty and the older theological position is seen to be sensible after all. Religion and science are clearly linked—but we cannot expect to realise a 100 per cent. tie-up all the time!

So much for the background. But let us be concrete. Can we name definite scientific findings and facts which were or might *in principle* have been predicted, at least tentatively, as a result of the study of the Bible?

It would seem that there are many such.

It is reasonable, I think, to say that the teaching of the Bible would lead us to conclude that a once-for-all creation of the universe is more likely than an all-the-time theory. Even if the latter is right, it does not follow that the first is wrong, for a process of continuous creation might well have had a start (even though, in deference to the principle of Occam's razor, that start is left out of consideration in modern mathematical formulations).

Again, the enormous size and wonder of the physical universe as revealed by astronomy are findings which seem to agree with (and are potentially predictable from) the biblical revelation. If the earth is but God's footstool; if God is really so great and wonderful that it is humiliation for Him to look down on earth and sky, if the stars are really in multitude comparable with grains of sand (though only 3,000 were visible to the naked eye before the days of telescopes), if His thoughts and ways are really unimaginably greater and more unfathomable than ours—then an unimaginably vast and wonderful universe would seem to follow as a matter of course. And it is such a universe that science has revealed in our day.

The same reasoning applies to the vast complexity and never-ending nature of science itself—quite a modern conception. Greeks, like Aristotle, thought they were well on the way to the end of knowledge: how different is the book of Job where God insists that Man's knowledge is virtually nil.

Today, the vastness of science appals us. Every scientific memoir

suggests endless further enquiries. Science has become an unending task. This again is a scientific finding that is potentially predictable on a Christian biblical basis. Indeed, did not Clerk-Maxwell make that prediction when, in his inaugural Professorial lecture at Cambridge in 1871 he referred to the prevailing notion that physicists had nothing left to do save to measure constants to another place of decimals, and retorted: 'We have no right to think thus of the unspeakable riches of creation.'

Again, the biblical teaching that the heavens are waxing old like a garment suggests that in nature there are seeds of decay—a principle recognised in the second law of thermodynamics.

Turning to the creation of life, the Bible is not very clear for the words translated *created* and *made* are imprecise and primitive. Yet it is reasonable to conclude that, in the end, it will be shown that life could not have arisen by chance and perhaps too that the process of evolution could not have taken place over its whole realm on a chance basis. On this subject the 1957 Moscow Symposium on the Origin of Life has aroused much interest, but although the promoters of the Congress were wedded to the opposite point of view, the Christian will find much in the published proceedings which seems to support creation rather than evolution. But again we must be cautious. Chemistry has revealed a quite fantastic correlation between the properties of matter and the needs of life: it is *conceivable* that the entire creative activity of God went into bringing this correlation about, rather than in subsequently arranging the atoms to form organisms. Either way, of course, there is much evidence of plan—which is just what Christian doctrine leads us to expect.

In psychology it would seem that we can predict, on a Christian basis, that properties of the human mind will be discovered which cannot be interpreted in terms of material organisation. For the Bible certainly teaches that there is a life to come and it is difficult (though not quite impossible) to accept this view if at death we cease to exist. Experimental demonstrations of extra-sensory perception by psychical researchers seem to confirm this prediction. But we must not be over-dogmatic: conceivably the soul is too subtle to be discoverable by means hitherto used. If extra-sensory perception were explained away, our Christian prediction would remain for a future generation to confirm.

While on the subject of psychical research, it would be reasonable to predict, on the basis of the Bible, that there will be discovered a new

form of matter, different from ordinary matter in very surprising ways. (Such matter is unaffected, or only very slightly affected, by gravity, can interpenetrate ordinary matter, is highly susceptible to the influence of mind but absorbs electro-magnetic radiation in the visible range.) This seems a natural inference from the fact that the Bible speaks of angels, etc., making their appearance. We are reminded also of the risen body of our Lord. Presumably we should not simply dismiss such events as miracles—miracles they were, but spiritual beings make use (presumably) of some definite kind of 'material' which, like ordinary matter, is also part of creation. Similarly, it will not do to dismiss such matter as 'spiritual', in contrast to 'material', for it can be touched (our Lord's body) and interacts with oscillating magnetic and electric fields. It would be quixotic, surely, to say that what affects our senses and interacts with well known physical forces is not material, at least in some sense.

A physicist might wish to speculate further. Since the new kind of matter can imitate ordinary matter in structure, he might reasonably predict the discovery of particles similar to protons, electrons and perhaps neutrons, but with vastly smaller masses and charges—or bound together perhaps by forces other than electrostatic.

As Christians, may we not fully expect developments along these lines? And is there not already enough to give encouragement? From the sub-atomic world there is arising a picture of vast complexity in which many new and unfamiliar forms of matter seem possible—the so-called *anti-matter* being the best known. The discovery of the neutrino—postulated many years ago but only detected recently—reveals how difficult and elusive particles with small or zero mass may be. Neutrino—made atoms might one day emerge on the scientific horizon—and what then?

Again, the geophysicist can hardly read the descriptions of the early Earth in Genesis and Job 38 without a feeling that science has verified the statements made in a remarkable way. Present views demand that the ocean came from the rocks in which it was once dissolved—'it burst forth from the womb' is an apt metaphor. It left the earth in the form of steam, so that there was darkness before the ocean condensed, there was great turmoil ('proud waves') in the waters; in the period of condensation sun and moon eventually peeped through the mists and there came a time when the ocean could no longer sweep over the continents—the bounds of the ocean being set. All these details are clearly stated. Potentially Christians could have successfully predicted

(indeed, sometimes they did) the course of scientific discovery regarding the early history of the earth.

Turning to ethnology, the biblical insistence that the sins of the fathers are visited 'even upon the third and fourth generation' might reasonably lead to the scientific prediction that, when sins have become prevalent in a society, there ought to be an observable effect after this lapse of time. Unwin's researches,¹ which covered an investigation of all the cultures for which data were available, show that this is indeed the case. After moral standards have lapsed a culture remains little altered for about a century but then, unless there has been a reform, the standard achieved falls to a lower level.

When we turn from the more direct and detailed statements of the Bible to those of a relatively secondary nature, large numbers of possibilities arise, but uncontrolled speculation and the uncertainties of exegesis come increasingly to the fore.

One difficulty is that we cannot always be certain how far popular proverbs, sayings and beliefs were incidentally made use of for the purpose of religious teaching. Just as today we speak of an ostrich-like behaviour without believing that, as a matter of natural history, ostriches put their heads in the sand to avoid unwelcome sights, so, it may be, Jesus spoke of disciples being wise as serpents without implying that serpents are wise. Similarly the Psalmist's reference to a poly-headed dragon in the wilderness doubtless refers to Egypt and does not imply the existence of an unknown biological species. We use similar expressions today (e.g. a two-faced person has not, anatomically speaking, two faces!). Given perversity or lack of knowledge it is possible to build a quite fantastic scientific picture from a collection of biblical texts—a foolish historian a thousand years hence might do the same on the basis of the language *we* use.

In this connexion we must not forget that biblical exegesis and secular knowledge (including science) must always mutually interact upon one another. Biblical allusions to facts will be difficult to understand if we are ignorant of the facts referred to: quite often the meanings of words can only be determined by appeal to non-biblical sources.

In illustration, the word translated 'firmament' in Genesis may puzzle us. Scholars tell us that the original meaning is connected with a verb which means to beat out thin, as for example in beating out

¹J. D. Unwin, *Sex and Culture* (Oxford, 1934).

copper to form a bowl. But pure etymology is not very helpful, for it does not tell us where to put the stress. A thing beaten out is of necessity *solid*, for we cannot beat out air or water. On this basis 'firmament clearly refers to the idea that the heavens are a solid vault with windows through which the rain passes'.¹ Or the stress may be put upon the idea of *expanse*—a large vessel is made from a small lump of copper, a *large* area is covered by a scrap of gold beaten out into leaf or foil. The open visible expanse of heaven through which the birds fly (Gen. i. 20) would then be the meaning; 'the firmament of heaven is simply the expanse of the sky'.¹ Either view makes sense, the first giving us a picture of the universe like that held by the ancient Babylonians, whereas the second view is quite concordant with science—for as the waters condensed, an expanse of clear atmosphere must suddenly have formed between the oceans below and the waters (clouds) above. In view of the close correspondence between the scientific picture and the general biblical picture, it would seem reasonable to adopt the latter interpretation. It was the tragic mistake of the sixth-century Egyptian monk Cosmas Indicopleustes that he sought to interpret the Bible without reference to the best scientific opinion of his day, with the result that his work now seems pathetic and amusing.

There is danger, of course, in such an approach. If we reinterpret the Bible so as to bring it into line with science, we may destroy the evidence that agreement with science really exists. We must first be certain, then, that without such reinterpretation the agreement is there, certain that we are on the right track. But if the foundation is sure, it is right to build upon it.

We demand no special treatment for the Bible here. We treat all old documents in the same way. There is, for example, a passage in Aristotle's *Generation of Animals* concerning lead ore which, we are told, increases in bulk and becomes thick, coherent and white when *pneuma* (spirit, or air) gets into it. The passage was unintelligible to classical scholars (who ever saw a lump of galena behave in so odd a fashion?) until the method of ore-dressing known as flotation was rediscovered in our own day. Now we recognise Aristotle's description as sensible and accurate. Again, how easy it would be to dismiss Virgil's story of how, at the destruction of Troy, the head of Aeneas became bathed in

¹ These two quotations, both recent, are taken from eminent British professors of theology!

flame as mere mythology. But interpreting the light as St Elmo's fire and remembering that a flash of lightning followed the event, our respect for the historicity of the story is increased. No doubt thousands of like instances could be cited.

To summarise our conclusions, the evidence shows that theology cannot be simply divorced from scientific results. The Christian definitely has a stake in the results of the research laboratory. He may rightly claim that much modern scientific development confirms his belief, in the sense that results are such as he would expect if his faith were true. If, on rare occasions, and often for short periods in history only, it may seem to be otherwise in some isolated field of endeavour, then there is no cause for alarm. No theory predicts all the right results all the time. But considered as a whole, the Christian (or Judaeo-Christian) faith is surely remarkable in its predictive power even at the purely mundane scientific level. And this is a wonderful fact which can only serve to strengthen faith in those who view it rationally.

We may agree, of course, that Christians in the past often overstated their case by virtually telling scientists what it was their business to discover, and that a reaction was overdue. But the older view was not wholly false. It would seem sensible to accept the idea that God often revealed—or at least alluded to—scientific facts which were unknown to man at the time, but that nevertheless *we* must be extremely cautious in our interpretations of these revelations. Indeed, we are more likely to recognise the import of the allusions when science has advanced the requisite degree than to understand them out of due season. But, despite caution, we must not refuse to recognise them for fear lest by so doing, we shall force our interpretations of the Bible into pre-conceived grooves of thought.