

Theistic Evolution

Keith Ward

As a theologian, I renounce all rights to make any authoritative statements about matters of natural science. To some, that may mean that I renounce any claim to speak about matters of fact at all. But there are many matters of fact that are not matters of natural science. It is a fact that Napoleon lost the Battle of Waterloo, but that, and many other particularities of history, will not find a place in any record of scientific discoveries or hypotheses. It is a fact that I am now thinking about what facts are, but again, natural scientists will not be professionally concerned with that fact. And it is a fact that either there is a God or there is not, though now that theology is not usually claimed to be a science (and it is definitely not a natural science), it is not a scientific fact.

I take it that it is an established fact of science that evolution occurs, and that human beings have descended by a process of mutation and adaptation from other and simpler forms of organic life over millions of years. The evidence for that does seem to be overwhelming. It seems to be equally firmly established that natural selection is the main driving force of evolutionary change; but my colleagues in evolutionary biology inform me that it is not agreed that natural selection is the only force, and that the mechanisms of evolution remain to some extent open to diverse interpretations.

I cannot decide on an undecided issue in natural science. So my reflections will not depend upon any particular view of what the physical mechanisms of evolution are, and they will not rely upon the insufficiency of natural selection as a scientific explanation of evolution. They will, however, touch on the question of what can be expected of a scientific explanation, and on what answer to that question an acceptance of the existence of God might suggest.

Central to intellectual reflection about God is the nature of consciousness. Those who believe there is a God claim that consciousness is ontologically distinct from material existence, and that consciousness is ontologically prior to material existence. For God, they argue, is an immaterial being

distinct from the universe, and the universe depends solely upon God for its existence. Moreover, God is usually said to have some reason for having created the universe. Creation is an intentional act, it is a bringing about in order to realise some purpose. This purpose need not consist in some end state toward which the universe strives. It may consist simply in the existence of the universe as a total process. But it follows that evolution – now shown to be a major feature of the universe as we know it – must either itself be chosen by God for some reason, or lead to some state that is so chosen. In other words, evolution must in some sense be purposive – either good in itself, or good as leading to some state that is good in itself.

This entails that evolution cannot simply be random or the result of blind necessity. It must be choosable, and must have been chosen, by a rational agent for the sake of some good that it, and perhaps it alone, makes possible. This may not say anything about the precise mechanisms of evolution, but it does say something about its value, and it suggests that it contains some goal or goals that the process is intended to realise, and that humans may help to realise. Whatever the mechanisms are, they will not be wholly fortuitous or accidental, and what they produce must be a possible and actual object of rational choice.

It is difficult to deduce specific implications of the thesis that the universe was created by God. But some observable states of affairs are more compatible with that thesis than others, and some will be incompatible with it. To this extent, at least indirect verification or falsification of the creation hypothesis is possible. As is well known, some specific forms of the creation hypothesis are falsified by acceptance of evolution. That the world was created only about six thousand years ago, as a literal reading of the Old Testament suggests, is the clearest example.

More generally, any theory that God directly creates every event for the sake of its goodness is falsified by the occurrence of events that are not in themselves good, and that also may be harmful to complexes of surrounding events. If natural science shows that many genetic mutations are fatally harmful to organisms, that is a strong indication that any theory of creation that attributes every event to the directly intended action of a good and omnipotent God is mistaken. The evolutionary process is one in which not all mutations are directed to the flourishing of organisms (that is largely, I am told, what is meant by calling such mutations “random”). Therefore, if one is to think of a Creator, one must envisage the creation of a process that is morally random in many of its details, though it will be morally good overall. That will affect one’s conception of the way in which God relates to the cosmos, and it will affect ideas of Providence and divine action. One must think of God as not undermining the generally stochastic processes of genetic modification. God will be a God who chooses chance, as part of the process of creation – and in order to support that hypothesis, one will have to be able to suggest some reason why this should be so.

The most obvious suggestion is that chance, or indeterminacy – that is, lack of sufficient causality – is a necessary, though by no means a sufficient, condition for the emergence of free and responsible choice on the part of agents generated by the evolutionary process. At this point, the argument from what is sometimes called “libertarian freedom” reinforces the argument from the observed stochastic nature of genetic mutation. Libertarian freedom is that property of a rational agent by which, on at least some occasions, no prior physical state, even with the addition of a set of general laws of nature, entails one specific outcome of a given situation. There are real alternative possible futures, and only the agent’s uncompelled decision decides which future is realised.

A God who creates every specific event for the best is a God who must sufficiently determine every event, leaving nothing to the causality of finite agents. To give real causality to finite agents is to allow for the possibility that they will not choose the best. Why should they not? A clue is given by our ordinary human experience of consciousness and intentionality. As conscious beings, we have a natural orientation to truth and understanding. When consciousness functions properly, it generates an understanding of truth. We also have a natural orientation to sensitivity toward and appreciation of beauty. To become fully conscious is to appreciate the form and structure of the objects of consciousness. And we have a natural orientation to happiness. Consciousness naturally seeks pleasure and avoids pain.

From reflection on consciousness, we can come to recognise a natural orientation toward truth, beauty, and happiness. Insofar as we do so, we are already postulating some sort of teleology in the existence of consciousness. We are supposing that there is an innate, inbuilt goal of conscious activity, which is to realise its nature by generating and attending to truth, beauty, and the happiness of sentient beings. There is a practical imperative that consciousness should realise itself in these ways.

In this way, if one begins by stressing the fundamental and irreducible importance of consciousness, one is already employing concepts of purpose and value as central to an understanding of how things are. For consciousness aims, so far as it can, to realise states of value – states of knowledge and understanding, of creativity and appreciation, of happiness and contentment. And such realisation, in conceiving of valued states and seeking to bring them about by consciously directed activity, is purposive. Moreover, that purpose is not just an option that may or may not be chosen. Insofar as conscious agents distinguish between what is truly of value and what only seems to be so, the pursuit of true values comes to have the character of obligation, of something that ought to be realised, even in opposition to forces that lead one not to do so. Where value, purpose, and belief in the freedom of the agent have a place, the concept of obligation is naturally generated as describing the course of action that the agent ought, if fully rational, to pursue.

Now, this is a very specific way of seeing human consciousness, and it may be far from obvious to many people. It may perhaps be described as a fundamental stance that arises from a basic way of seeing one's own experienced existence. In saying that way is "basic," I mean that it is not based on any simpler set of observations or on any further justifying arguments. It is just how things appear, upon reflection, to a being that seeks to comprehend its own nature as existing.

In particular, it is not based on any scientific findings or on any previously known general philosophical or revealed principles. It is what has been called a "phenomenological" claim – a claim to reflective insight into what the nature of consciousness, as an experienced phenomenon, shows itself to be. My claim is that, to a properly reflective agent, consciousness shows itself to be a distinctive form of existence that has an inbuilt disposition toward self-realisation by attending to objects that manifest truth, beauty, and happiness. It has a disposition toward the good.

However, it is at once clear that this disposition is an ideal or obligation rather than a universally manifest fact. Human agents very often live by the acceptance of conventional opinion or wish-fulfilling fantasies. They often seek passive entertainment and diversion rather than creative understanding. They often choose easy sensual gratification rather than the welfare of all persons and sentient beings. Falsehood, diversion, and gratification are the easier options. They are forms of inauthentic existence. They contract, rather than expand, consciousness, but they also offer direct and immediate rewards. It is not hard to understand why finite sensuous agents should choose such things, rather than the good or the best, to which they are naturally – but not actually – disposed.

On this understanding, humans find themselves existing in a world that calls them imperatively to realise their disposition to the good, while at the same time placing before them a host of inclinations to self-gratification. In such a world, freedom is the physically undetermined choice between imperative and inclination. Only in the moment of decision is the future determined. Personal agents can be seen as points at which the universe itself determines its own nature, either toward good – that is, toward greater creativity, comprehension, and community – or toward a passivity, ignorance, and egoism that in the end denies any distinctive value to personal existence itself.

All this may seem heavily evaluative, and it is. It is an evaluation of personal existence that springs from a sustained attempt at reflexive understanding – an understanding based not on experimental observation and hypothesis but on the effort to understand from within, from one's personal experience, one's own distinctive form of existence as a human being. If this is admitted as a source of knowledge and understanding, then it must stand alongside the experimental observations of the natural sciences as a way of providing an adequate account of human nature and of the nature of the universe of

which humans are an integral part. But these two sources of understanding – the experimental and the reflexive – must cohere with one another. They must be compatible, and more than that, they must be mutually reinforcing, if a plausible view of human nature is to be achieved.

It is the difficulty of attaining such coherence that has largely occasioned the division between the sciences and the humanities, between a positivistic view of science and a broadly idealist view of the humanities, that has marked Western culture over the last two hundred years. With the division of European philosophy in the early twentieth century into logical positivism and existentialism, leading on to postmodernism, the gap became a chasm.

The theory of evolution has become the location at which this chasm has emerged most sharply. But it is also perhaps the place at which it may be bridged. The chasm seems to be a yawning gulf when neo-Darwinian philosophers claim that everything about human life and consciousness can be explained wholly in terms of natural selection and a few basic laws of physics, and when postmodernist philosophers claim that scientists are merely producing social constructions of their own imagination, that there is no such thing as objective truth at all, and that evolutionary theory is a way at first of supporting and later of subverting traditional values of human, intellectual – and probably Western and male – superiority.

The chasm between the view that “real” explanations need to be proposed in terms of physical, publicly observable (or inferable) atomistic elements and a few basic laws connecting them, and the view that the personal conscious experience of subjectivity is an ineliminable and inexorable constituent of reality – perhaps even its deepest nature – seems vast. Yet evolutionary theory contains the possibility of bridging it, insofar as it offers a view of the emergence of consciousness as a natural and continuous development from simple material elements into the complex integrated forms – the neural networks – that make consciousness possible. Physical explanations are real and vital, and they are truly explanatory of the genesis of physical complexity. But such complexity issues in conscious states, which then require a different form of explanation, one in terms of intentions and purposes, in order to account for their behaviour. One form of explanation shades into the other by a continuous developmental process, which is nonetheless significantly different at each end of the spectrum of development. In such a context, the basic physical processes themselves might be seen as purposively oriented from the start toward the development of consciousness, purpose, and value.

That is in fact how evolutionary theory began, in the works of cosmically optimistic philosophers such as Hegel, who saw history as the self-realisation of consciously experienced values, implicit in the very structure of the cosmos itself. From the phenomenological point of view, we might see ourselves as beings poised in freedom between the realisation of many forms of goodness potential in the cosmos, on the one hand, and the actualisation of the

destructive possibilities of conflict and negation that are also implicit in the structure of physical reality, on the other. This may well suggest a view of the cosmos as a process of emergence through a polarisation of creative and destructive forces (the dialectic of history, in Hegel's terms) – a process oriented toward the ultimate realisation of goodness but driven also (and essentially so) by destructive forces that impede, but also act as catalysts of, that realisation, a process in which we play a pivotal, if minor, role. For Hegel, the universe evolves from brute unconscious objectivity toward a perfect self-conscious subjectivity, through a dialectical process in which human freedom expresses the decisions of finite beings to realise or to impede the self-realisation of the potencies of being, which is the history of the cosmos.

The subsequent history of philosophy has not dealt kindly with Hegel. His cosmic vision was felt to be too grandiose, and too much like armchair speculation, to satisfy the increasing demand for precise measurement and testable observation. His postulation of an Absolute Spirit that realises itself in an evolutionary cosmos was felt to be too redolent of the all-determining God of theism, whose very existence compromises the possibility of human freedom. So philosophers divided into those – the linguistic analysts – who ceased to speak about the universe at all, leaving the field clear for scientists, and those – the existentialists – who insisted on absolute freedom and the particularity of personal experience to such an extent that no objectivity was left for a general view of the universe to latch onto.

Where philosophers feared to tread, scientists rushed in to fill the void, and the result has been the creation of a new grand metaphysics of the cosmos on an allegedly purely scientific basis – a metaphysics of the genesis of complexity by a combination of interminable random shuffling and recursive elimination of the unfit. But in this metaphysics, subjectivity and consciousness have no place, except as mysterious and useless by-products of an intrinsically blind and automatic process without direction or goal.

Perhaps there is still something to be said for Hegel, however, from a theistic point of view. One basic problem of traditional theism has been the question of why the creator should have apparently failed to choose the best possible world – only Leibniz was brave enough to suggest that the creator had done so, and he was memorably mocked for his pains by Voltaire. If theism is approached from a phenomenological perspective, and enriched by the addition of an evolutionary view of the universe, the problem might not appear in that form. One would begin from the experienced facts – or necessarily postulated facts – of freedom, of orientation to the good, and of inclination to the bad. Then one might be led to postulate a partly indeterminate universe as the necessary condition for such freedom – a universe containing both creative and destructive possibilities, as a condition of its dialectically emergent character. One can see the cosmos as

oriented toward goodness, but only through struggle and the exercise of finite freedoms. The history of the cosmos would be an increasingly self-shaping emergent process oriented toward the realisation of new states of value, of truth, beauty, and community – toward what the Jesuit visionary Teilhard de Chardin called the “Omega Point,” where goodness is perfectly realised as the natural culmination of cosmic history. The whole process would be purposive, tending toward a supremely valuable goal, and the nature of that goal would be defined in part by the nature of the process itself, so that the goal could not exist without the process by which it had been generated.

Admittedly, this vision is rather grandiose and speculative. It is a bold hypothesis. But if it were entertained as a possibility, it would enable one to speak of the universe as purposively shaped toward the realisation of a unique and distinctive state of value. This might not suggest a picture of God as planning everything for the best, out of an infinite range of possible worlds among which God could freely choose. But it might suggest a picture of God as creating a relatively autonomous, purposive universe for the sake of a goal of great value that such a universe alone could realise. This picture could be strengthened by supposing that the creation of such a universe is part of a necessary process of self-realisation by God, even though many features of the created universe may be contingent or even fortuitous. If one could add that such a God would know and remember all the values that the universe would ever realise, and could give finite creatures the possibility of sharing in that knowledge to an appropriate degree, one might not hesitate to say that such a God was a worthy object of awe and desire, and that such a universe was grounded in a mindlike reality with intention and purpose, rather than in chance or blind necessity.

It should immediately be said that theistic faith does not rest simply on such a bold hypothesis. Its main basis is undoubtedly the sense of experiential encounter with a transcendent reality. That sense is adumbrated in many ways – in the beauty of nature and art, the courage and compassion of devoted human beings, the order and elegance of the laws of physics, the ecstasy of love, the desolation of loss, and the terror of storm and earthquake. In all these experiences, many people believe that they can sense a reality that makes itself known in and through them – powerful, mysterious, beautiful but dangerous, attractive yet austere, always present yet infinitely removed and always beyond our grasp. That is the reality that theistic traditions name “God.”

Such experiences of transcendence are often refined by disciplines of overcoming attachment and attending to supreme goodness. They are then shaped by traditions of revelation, of what are felt to be initiatives of the Transcendent itself, revealing its nature more fully in paradigmatic personal experiences, inspired interpretations, and historical events. For Christians, the life of Jesus, the experience of his presence after the Crucifixion, and

of the power of the Spirit that flowed from that experience can become a disclosure of the nature of the Transcendent and of the final transfiguration of the finite into God that will come through the experience of suffering and self-renunciation.

All of these strands – personal experience of the divine, revelation, the sense of responsible freedom and moral obligation, and speculative conjecture about the nature and destiny of the cosmos in which consciousness has a central role – come together to form a cumulative case for theism. Their source is not experimental observation of physical and measurable processes. Theism is not primarily a theory meant to explain why the universe is the way it is. It is primarily a commitment to a more-than-physical reality experienced as morally demanding, yet also as forgiving and sustaining. It is incumbent upon the theist, however, to provide some account of how such a reality relates to the observed nature of the universe.

The theistic postulate clearly must not contradict well-established observations and hypotheses, and such observations may suggest that some forms of theism are more plausible than others. Thus a form of theism that allows for a partly indeterministic yet purposively oriented emergent cosmos is, for the reasons given, more plausible than a theism that supposes that a perfectly good God directly chooses every particular state for a good reason.

Is the theory of evolution, as it is accepted by the consensus of competent scientists – however provisional that consensus may be – compatible with a theistic interpretation of evolution? Atheists have offered a number of reasons why it is not so compatible. One is that the process of evolution is too random, that it shows no overall improvement, and that it has no discernable direction. Another is that the process is too cruel, too indifferent to the welfare of the life forms it produces, to be seen as providentially created or directed. A third is that it is virtually certain that all life will become extinct in the long run, as the Second Law of Thermodynamics inexorably takes effect. So the whole thing will end in futility. The Omega Point will be the same nothingness as that from which the universe began – by some random quantum fluctuation, perhaps – and any talk of a final goal is thereby shown to be no more than wishful fantasy. A fourth reason is that God is simply superfluous as an explanation. One can explain what happens in the universe most simply and elegantly without any reference to a God. We have no need of that hypothesis.

These reasons do not seem to me to be very strong. When mutation is said to be random, the point is that most mutations do not seem to benefit either the individual or the species. This might suggest that there is no inherent tendency of mutations to proceed in any specific direction. However, mutations are not random in the sense of being free from the laws of physics. Since God would design both the laws of physics and the environment that selects some mutations over others, it is easy to see the mutational process as a whole as directional, as leading to the selection of cumulatively

complex systems and eventually to the existence of conscious agents. The system as a whole may have a tendency toward a goal, while individual events within it have a large degree of variability. One might see evolution as akin to the shuffling of a pack of cards, which, in a suitable set of environmental conditions, will produce a well-sorted pack in a finite time.

It is undeniable that organisms have developed from unicellular organisms to beings with central nervous systems and brains. If a necessary condition of the actual existence of values is the existence of consciousness, understanding, and feeling, then there is here a development of values from a cosmos in which there were no actual values (except, perhaps, those experienced by God in contemplating the beauty of nature). That is a strong enough sense of direction, development, and progress for any theist.

To the objection that there is too much suffering in the evolutionary cosmos for it to have been designed by a good God, there are three main responses. First, God's goodness lies primarily in the perfection or supreme value of the divine nature itself, and it is unaffected by what happens in creation. Second, the suffering involved in evolution may be a necessary or ineliminable part of the structure of the cosmos, which itself may arise by necessity from the divine nature – for instance, as an actualisation of potencies within the divine nature that inevitably express themselves in some form. And third, creaturely suffering may in large part be sublimated by being taken into a postcosmic experience in which all creatures that are capable of it will share in a divine experience and happiness incomparably greater than any finite suffering.

Of course, these suggestions are disputable, even among theists. But they are all to be found in some form within most religious traditions, and in my view they are sufficient to demonstrate the compatibility of the existence of suffering with a good Creator. All that needs to be shown here is that there is some set of conditions that would render divine goodness compatible with suffering in creation. We need not know what they are. But these points do suggest, I think, that there could well be some.

As to the suggestion that the universe will come to an end, that is wholly irrelevant to the question of whether its existence, at least for large periods of time, has been of great value. In addition, most theists will suppose, as part of their initial hypothesis, that God will be able, and will probably wish, to give creatures a postcosmic existence (in Paradise, or in the presence of God) that will not come to an end. After all, God will not come to an end with the death of the universe, and so there is reason to think that God would give creatures continued existence in another form. So the questions of how the physical universe began, of how long it will last, and of how it will end are not directly relevant to the issue of whether God chooses to create great and enduring values that originate in and are importantly shaped by, but not necessarily confined to, an emergent evolutionary physical cosmos.

The most challenging objection to theistic evolution is probably that the postulate of God is superfluous to scientific explanation. The paradigm of scientific explanation is one for which an observable initial state gives rise, by the operation only of general quantifiable laws, to a subsequent observable state. But there is another form of explanation, one that was one of Aristotle's four forms of causality, though it does not form part of modern science. That is explanation in terms of value, the value of that for the sake of which some occurrence happens. This has been called "personal explanation" by Richard Swinburne, and it is well established in ordinary usage.

I explain my writing these words by stating that for the sake of which I am acting – the production of a chapter, something that I want to produce, something that is of value to me, at least. This is a value, a state of affairs envisaged in my mind, that I am trying to realise. So a clear case of personal explanation is the formation of intentions in human minds, and the undertaking of actions in order to realise those intentions.

Whereas the basic elements of scientific, causal explanation are "initial conditions" and "law," the basic elements of personal explanation are "intention" and "action." No account of initial physical states and laws will ever mention an intention or a purposive action. These are different categories of explanation, using different basic terms. We ordinarily assume that, while they do not conflict, they are irreducible to one another. The relationship between them, like the relationship between physical brain states and mental occurrences, remains deeply mysterious in the present state of knowledge.

Some scientifically minded philosophers, however, would say that the postulate of mind, and of personal explanation, is superfluous to a proper explanation of how things occur, which must be a scientific explanation. That is, we could in principle give a complete account of all the processes of nature just in terms of brain states and the laws of physics. Of course, no one has come near to doing such a thing. It would be far too cumbersome and complicated to be of any practical use, in any case. So personal explanations, in terms of intentions and actions, are useful as a sort of shorthand for referring to the total states produced by the interactions of millions of fundamental particles. Personal explanations, in short, are useful currency for human beings, but they are strictly eliminable and superfluous, and they do not require the postulation of any immaterial or mental entities or states, in addition to physical states.

Such a hypothesis is verifiable in principle, if one could successfully predict all occurrences in terms of laws governing the interactions of fundamental particles. But any such verification is vastly unlikely, if only because the calculations required for reliable prediction would require a virtually infinite amount of information. One would need to know the total state of the whole universe, and all the laws that would ever apply to it. Moreover, the present state of quantum theory suggests that access to a precisely specified

set of initial conditions as they are in themselves is barred to any means of observation we can conceive.

All that is actually available to the natural sciences is the well-established fact that general laws do apply, other things being equal, and that complex entities are built out of smaller component parts, which account for the behaviour of the complex entities, in general if not in precise detail. (There seem to be indeterminacies in physical systems that can cause macrocosmic changes that are unpredictable in detail by finite observers.) In this situation, personal explanations are not in fact superfluous or eliminable. Whatever their ultimate status, they are nonscientific forms of explanation that are invaluable for understanding human life and conduct.

The basic theistic hypothesis is that there is a personal explanation for the universe as a whole. The universe exists in order to realise values that are envisaged by something akin to a cosmic mind. If one asks why that mind exists, the answer is because it realises value in a uniquely preeminent way. God exists because God realises the highest conceivable value, and the universe exists because it realises values conceived by God that can exist only in such a universe, and which perhaps, in their general nature, are necessarily emergent from the reality of God itself.

If the theistic hypothesis is true, not only will personal explanation be nonreducible to scientific explanation, it will be the more basic form of explanation. The fact that the natural sciences do not mention or refer to it does not indicate that it does not or cannot exist. Since there are no observable initial states in God, and since God does not act in accordance with general causal laws, it is not surprising that there can be no scientific explanation of the creation of the universe. Nevertheless, theistic explanation is not superfluous, for it explains why the universe exists by referring to the nature of a divine mind. If there is a God who has purposes for the universe, and if one of our roles is to implement those purposes, theistic explanation will add substantial knowledge to what natural science tells us about the nature of the universe. If one of those purposes is that finite beings should come to know and love the Creator in some appropriate way, this will be knowledge that the natural sciences are in principle unable to provide.

Evolutionary biology can tell us, with quite a large component of speculation but also with a good deal of positive evidence, the mechanisms by which organic life forms developed on Earth. It does not, as a natural science, even deal with the question of whether evolution has purpose or value. If it has, then the theistic hypothesis, far from being superfluous, will be one of the most important things we could know about human existence.

It is vital to insist that God is not here being postulated as the simplest explanation of design. Despite what early anthropologists such as James Frazer and Edward Tylor have said, there is no evidence that any religion began with attempts to explain why events happen as they do. On the contrary, it is fairly obvious that religious beliefs rarely offer satisfactory explanations

of specific events. They most often pose problems about why God should act in the way God does, at which point religions often resort to appeal to mystery. The sources of religious belief lie elsewhere, in experience of a transcendent reality, of an overwhelming moral demand, and of awareness of a personal presence. Explanation comes in only when one seeks to integrate such experiences with knowledge of the natural environment, in all its ambiguity and complexity.

It is only if there is believed to be a reality of supreme value, which is knowable in and through the natural world, that one will be tempted to speak of Intelligent Design or of creation. An analogous case is our knowledge of other persons, other centres of conscious experience and agency. We do not postulate other persons because that is the simplest explanation for why bodies move as they do. We believe there are other persons because we see and react to parts of the world as mediating personhood. This is a matter not of inference but of encountering objects as mediators of personal forms of existence. It is a basic, noninferred, epistemic attitude. Once we have the concept of persons, we will naturally explain the movements of their bodies as being at least in part, the result of conscious states. But those states may remain largely mysterious, and we may often only guess at what the detailed explanation for them might be.

So it is with the idea of God as supreme objectively existing value. Presumably there is some relation between God and the physical universe, and religions offer various accounts of just what that relation is. Theistic accounts generally suppose that God is at least a designing intelligence, and perhaps the generator of physical reality for some good purpose. For such an account to be plausible, the observed processes of physical reality must be adapted to a good purpose. In other words, if theism is a plausible way of integrating reliable experience of God with observations of the physical universe, and if Darwinian explanations give a good account of that universe, then Darwinian explanation must be compatible with theistic explanation.

The Darwinian says that apparent design could have come about by the cumulative repetition of simpler, unconscious, and unintelligent elements. We therefore do not need to postulate any other causal influence. The theist says that the universe was created by God in order to realise otherwise unobtainable states of great intrinsic value. There is a goal for which the universe was created, and it was envisaged by a cosmic intelligence. There is no incompatibility between these views. One asks about the causal processes by which states of affairs have come into being. The other asks about the purpose for which they have come into being. As Michael Ruse has argued, they are complementary forms of explanation.

Yet would a theist not wish for some more positive and particular interaction of God and creation? Already, in speaking of awareness of God, some causal interaction between God and the world has been posited. For, on most accounts of knowledge, the objects of knowledge play a causal role

in the perception of them. Our knowledge of a chair is caused in part by the existence of the chair. So if we know God, then God plays some causal role in that knowledge, and therefore in the genesis of the physical states of the brain in which that knowledge is embodied. It seems that anyone who speaks realistically of knowledge of God is committed to saying that God causally interacts with at least some physical states of affairs.

The case here seems not dissimilar to the case of mind-body interaction in general. If it makes sense to speak of intentions causing actions, in the human case, then it probably makes as much sense to speak of divine intentions causing physical states of affairs. We do not speak of the laws of nature being broken in the one case, so why should we do so in the other? There are areas here where human knowledge is as yet very meagre. But my own predilection is for an account of laws of nature along the lines proposed by Rom Harre – not as inviolable and inflexible rules that all events must obey, but as pointing to propensities of objects, variously realised by the sorts of interactions and forms of integration into complex structures that those objects exhibit. Laws are general principles of the interaction of objects, but those laws become more complex as objects relate to one another in more complex and structured ways.

If the whole physical universe is generated and continuously sustained by a spiritual intelligence, it is to be expected that the presence of that intelligence will have particular causal effects on the universe. Just as we consider the forming of intentions by humans as having causal effects in history, so we may assume that God's intentions will have causal effects in the cosmos, even if we do not have any satisfactory account of how such causal links "work." Believers in God have no difficulty in thinking that sometimes the general laws of nature will permit exceptions. For though the general uniformity of nature is a condition of reliable science (and that may be one good reason for such uniformity), it is by no means necessary to science that there will never be, much less that there can never be, exceptions to such uniformity.

In most cases, however, the theist will not wish to rely on exceptions to the laws of nature. Rather, the theist may wish to affirm that natural causal processes are influenced or modified (not violated or "broken") by specific divine intentions, even if we cannot pinpoint where such influence occurs. It is a statement of faith, not of science, that everything that happens, even on the physical level, must do so in accordance with exceptionless laws of nature. It will probably never be possible to trace in detail all of the causal factors that go to determine the evolutionary process. So if theistic evolution posits that God causally influences evolution in order to ensure, for example, that it results in the existence of free moral agents, it is virtually certain that the natural sciences could not falsify the claim. If this were a strictly scientific dispute, the victor would be the most economical hypothesis, the one without God. But it is not. It is a dispute about the ultimate nature

of reality, and about whether the natural sciences alone give an adequate account of that nature.

Purely naturalistic accounts of evolution have, as their main strength, the fact that they offer apparently simple and elegant accounts of evolution that do not need to refer to non-natural entities or forces. They strongly motivate research programmes, and they have been heuristically fruitful. Theistic accounts of evolution have, as their main strength, the fact that they seek to take into account the facts of consciousness and experience in an integrated, purposive explanation. They seek to integrate subjectivity with the objective world investigated by the natural sciences. They seek ultimately to assign good reasons why the universe should exist as it does.

There may be no such reason; but the nature of science itself, which seeks reasons for as many things as possible, prompts the mind to seek one. In this sense, the postulate of God is a nonscientific hypothesis that nevertheless has an intellectual affinity with the natural sciences. Both seek an adequate understanding of what the universe is like. One looks to objective, dispassionate, quantifiable, and publicly accessible evidence. The other looks to the data of subjective experience, of feeling, evaluation, intention, and obligation, which require a more engaged, intuitive approach. The true consilience of humane and experimental understanding, which is a proper goal of intellectual endeavour, is perhaps most likely to be found, not in reducing one form of understanding to the other, but in an integrated worldview that can coherently relate one to the other. One main argument for belief in theistic evolution is that it offers at least the prospect of framing such a view, which takes the findings of modern science and the testimony of the world's ancient religious and philosophical traditions with equal seriousness.