

TWO DIFFICULTIES ABOUT EVOLUTION

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ONE sometimes hears it said that 'the Church' has changed its mind about evolution; Catholics are now allowed to believe in it, whereas formerly they were not. This is a thoroughly confused remark. Evolution is a biological theory, and biological evidence tells us whether it is true or false. It would be very odd to speak of a theory concerned with neither faith nor morals being officially accepted or rejected as part of the Catholic faith. But because the theory has implications which touch on the faith, Catholics looked for guidance from authority about the attitude they should take towards it where those matters were in question: guidance now given them in the encyclical *Humani Generis*, which encouraged theologians to investigate those points where the theory bore on truths of faith. The present article is not concerned with the biological evidence, which I accept, nor with an extended theological investigation, but merely with difficulties which Catholics still seem to have about the theory, and which are really philosophical in kind.

The first difficulty lies in the conflict which people still find between the theory of evolution and divine providence. How can we say that God directs the whole course of history if rigid scientific laws determine the way in which living things developed from inorganic matter, and finally evolved man? The problem is really that of understanding how causes in the natural world are related to the causality of God. People tend to think that if natural causes are not independent of God, their dependence must imply his constant interference with them to bring about what he wills. Either he gave laws to the world at its creation which then controlled its future progress without further reference to him, or else he must have intervened from time to time to make events happen as he willed they should.

The real source of this difficulty is a mistaken idea about the nature of God. We tend to think of him as causing events in the world in much the same way as other events cause them—though of course he is a much greater and more powerful cause. Nevertheless we feel that he is acting alongside the normal causes that

science tells us of, and he must therefore either let them take their determined course or modify their action. We can only resolve this dilemma by coming to see that God is to be thought of as cause in a manner different from the causes of our normal experience, though not unrelated to them. And this is only possible if we put aside *a priori* views we may have about God and his action in the world, and let our thought pass naturally to him from thinking about the world he has made. Such passage of thought is achieved in what St Thomas called 'the five ways to God'. They are often spoken of as proofs of God's existence, and used apologetically to convince a non-believer. Whether this is possible or not is a controversial topic which I do not intend to discuss: it is enough to see that they constitute a framework of thought by which a believer can gain a more correct understanding of that in which he believes.

The five ways require us to examine, say, the notion of causality, to see that 'cause' is a word applied to things in a variety of related ways, and from this to see that where the causal pattern is completed by God, the word 'cause' has not lost its meaning by being applied to him, though the manner of application is totally other than any we know. Without entering into detail, it can be said that the ways assert the otherness of God, and prevent our thinking of him as part of the pattern. We are led to speak of the dependence of things on God, yet to see that this dependence cannot be grasped as the dependence of effects on causes can be within the pattern. Causes as we know them show us why things are *this* rather than *that*: this indeed is the way in which causes offer an explanation of their effects. God however does not produce any particular difference; if he ceased to act, things would not be different, they would cease to be. To suppose otherwise, as people do when they try to explain events by means of divine intervention, is to try to bring God within that pattern of his creation from which the five ways exclude him. A total cause cannot rival normal means of causal explanation. In speaking of it we have left the language of empirical cause.

It is therefore our tendency to muddle up languages at different levels which produces this first difficulty about evolution. Instead of realizing that we have to employ both the language of scientific causal explanation (which the theory provides) and the non-empirical language of total dependence on divine providence, we

try to see God as a cause alongside other causes, so that his intervention makes him responsible for part of what happens, at moments of crisis, while normal progress is due to causes that he does not need to control. Better to abandon the language of science altogether (as for example Berkeley did), than to imagine a world independent of God. But there is no need for this. A thing is no less itself, with its own causal activity, for being totally dependent on God, because God is not a part of his creation but transcends it. Both God and the medicine we take are in different senses the cause of our recovery from illness, because the efficacy of medicine is from God, just as is the power of germs to make us ill. Both, not one or the other, have to be asserted.

The second, and perhaps greater difficulty, is connected with the need for divine intervention in the creation of a human soul. Some people see the need for such intervention at many points along the evolutionary line; others are puzzled to know why the Church has insisted (at least since the thirteenth century) that the human soul is the direct creation of God, and not due to other created causes under his providence, which we have seen to be the normal state of affairs. Normally any effect is the result of some created cause or causes, and also (in a new though related sense) of the causal action of God. But certain happenings are, we believe, due to God alone, not to any other cause. There are, for instance, those rare events which we call miraculous because we cannot assign normal causes to them, and which have occurred in a religious context such that it can reasonably be supposed that we are to attribute them directly to God. Though such events are abnormal from our point of view, from God's (if we can speak in this way) they do not differ from events which also have ordinary created causes. We now have to see whether reasoning shows that created causes fail to account for the step to higher organisms at any point in the course of evolution. If so, we must say that God there acts directly, dispensing with other causes: otherwise there is no need to assume this.

At this point of the discussion it is helpful to make use of Aristotle's language of matter and form. Unfortunately so much has happened to these words during their long history that they can be misleading rather than helpful; in some ways it might be better to translate again from the Greek, and speak as Aristotle did of 'wood' and 'shape'. In using those words Aristotle was saying

that when we know some particular kind of thing we see that it has a certain shape—not a physical shape, an outline, so much as a shape to the mind, by which we grasp the sort of thing it is. Things have a shape to the mind as they have shape to the eye, the definiteness by which dogs are dogs and sheep sheep, with their own patterns of behaviour. It is this shape or form which makes a thing be what it is, so that we can know it in an intelligible way. Aristotle implied that it was not enough to know the causes of a thing to understand it, at least if the notion of cause is restricted to the usual sense of efficient causality: there is also something about the thing itself which causes it to be what it is, and this is its form. Formal and efficient causes are not rivals, but complementary. It might also be suggested that things should be intelligible in terms of the constituents which make them up. This is denied by using the language of form. We certainly need to analyse any substance in terms of its chemical or even sub-atomic constituents; but we also want to think of the thing as a whole, and this need is not done away with by any analysis, however complete, in terms of its elements. To take a simple example: though we know that it is with the eyes that an animal sees, we examine its whole behaviour pattern when we wish to discover whether or not it is blind. The animal sees, not the eye—that is merely the instrument of sight. We need the language appropriate to an organism as a whole, as well as the language appropriate to its different constituents. The one will not reduce to the other, and this is a matter of principle, not of insufficient technique at any particular time. The Aristotelian notion of form implies that things have an organic unity about them; form is their principle of organization.

Matter, in the Aristotelian sense, is simply that which is correlative to form, that which is informed. The difficulty all the time is to avoid thinking of matter as something, form as something else, which come together to make up the whole being. Matter and form constitute things, but are not themselves things. We cannot say that a thing is made up of matter and form in the way we say it is made up of atoms and molecules, or nerves and cells, or flesh and blood. Descriptions in scientific terms and in these philosophical terms cannot rival one another; they are at different levels of language. When the languages get mixed, the result is bad science and bad philosophy, as for example in the

abandoned biological theory of vitalism, which looked for a vital principle alongside the cells, nerves and so on which make up a body and in principle provide a complete biological description of it. Or to take another example, death in nature would be mysterious if we thought that form was something which inhabited an animal, and then wanted to ask where it had gone to. What has happened is that for biologically assignable reasons the creature no longer exists as a single unit so that the form by which it was made a single organism (and by which each part of it was what it was) has ceased to organize it, and instead we have a collection of different things (each now organized by particular forms) still juxtaposed but no longer one.

To what extent is this philosophical analysis valid for the evolutionary picture of the world as understood by modern biology? If a highly complex theory can be compressed into a single statement, we may say that evolution occurs through the natural selection of favourable mutations. Assuming that this is a correct statement, since it is not my intention to discuss biological problems as such, how does the language of matter and form apply to the situation? Though evolution was probably not envisaged by Aristotle or his medieval successors, they certainly devised their philosophical language in order to discuss the nature of change in general. When change comes about through any agency, they said, one form is replaced by another, for it is form which makes each thing be what it is, so that one species differs from another in virtue of different forms. Continuity throughout the change is due to matter. It is sometimes assumed that this analysis implies a sudden jump from one species to another, but this is not true; St Thomas, for example, was discussing a gradual change akin to that of evolution when he attempted to analyse the development of the human embryo as this was understood by medieval biology. The characteristics of a particular species are due to the form which organizes it in that way, but under external influence they can change gradually towards those characteristic of a species controlled by a different form. At a certain point the new form will replace the old one, and development will continue until there is sufficient stability to speak of a new species, but in general it will not be possible to determine just where this point of replacement is in what appears to be a continuous process.

It is now possible to return to the original problem, and

consider the extent to which created causes are sufficient under providence to account for the evolutionary process. They must be considered sufficient until we are compelled to speak of a form different in kind from that which it replaces. This is not the case, to take the first crucial point, where inanimate matter develops into living. It could only be thought to be so on a false philosophical analysis which demanded the presence of a new entity, a vital force, for example, to produce life. But there is no reason to suppose that living things differ from inanimate in any other way than in greater complexity of structure, permitting greater complexity of behaviour, which has to be described in more developed language. 'Synthesis of life' only seems paradoxical because we subconsciously tend to think of higher and lower forms of life as sharing in some specific factor. But 'life' is a generic concept, not a specific one; the living things which first appeared in the course of evolution, and which will one day be synthetically produced in our laboratories, are of a structure almost as simple as that from which they develop. It is often difficult, for example, to know whether a virus should be called living or not, and essentially this is not a question that we need to decide.

The transition from plant to animal is covered by a similar account. But what of man? There is always a danger here of lapsing into dualism; it is so easy to say that man differs from an animal because he possesses a new entity, his soul, which lives in that other less important entity, his body. The Aristotelian analysis, which identifies soul and form, at least avoids this duality, and takes account of the fact that we are a single being, not two; that it is we who see and feel, not our soul or body. Soul is simply that which by informing matter makes a being such as we are, who like the other animals, grows, feels, sees, thinks, thanks to a structure biologically describable. But there is a human activity that differs essentially from that of the animals, the activity of knowing and willing, and this requires us to say that the human form, while it is still all that animal form was, has also become something radically different.

It is hardly possible, in a short summary, to do justice to the reasoning which leads to this conclusion, but I must try. What is essentially new about human knowledge is that no limits can be assigned to it. Where a sense knowledge such as that of sight is

limited to shapes and colours, intellectual knowledge opens up an order of meaning which is not limited in this way. This is not to say that we in fact have a total knowledge of all that is, but that we are open to have it. This is why it is natural to talk of the creative power of the human mind, in reference to our capacity of breaking through all limits in the discovery of meaningfulness.

Now to say that man has this capacity for knowledge is to say something about his form. Things show us what they are by the way in which they act, and if human knowledge in one sense has no limits then the human soul in a sense has no limits, for it is by the soul (or to use the term more natural in this context, the mind) that we know, just as it is by the eye that we see. If the mind possesses the meanings of things in this unlimitable way, then it cannot be limited by any bodily organ. It is rather like saying that we cannot be wearing glasses of any particular colour when we are able to see the whole range of colour. This is not to say that mind functions apart from the body: our knowledge is of material things presented through the senses, which act as signs yielding their meaning to us. The human form knows because it is informing matter, and constituting our body, yet unlike any other form it must at the same time exist in its own right. This too is why we alone are capable of moral activity in the free choice of what is good, but it is impossible here to develop the analysis in this direction.

We can now see that there must be some gap in the evolutionary process; it is impossible to assign natural causes for anything so radically new as the human soul. Despite the real continuity in the development of human beings, supported both by general biological ideas of how evolution comes about and by the hominoid remains that have been found, it still makes sense to imply discontinuity in speaking of a first man, as has always been done in the Christian tradition. As we saw earlier for change in general, it would probably not be easy for an outside observer to know just where the change occurred. The human soul gives our race immense potentialities, some of which have by now been realized, but there is no need to suppose them fully developed in our first ancestor. All that we have to accept from revelation is the possibility of moral activity, which is itself a sufficient indication of the radical change which once took place in the evolutionary pattern, under the providence of God.