

The Anthropomorphic Illusion 516 —A Note on Jacques Monod by Noel Roberts

A recent book¹ by a Nobel prize-winner in biology, Jacques Monod, is proving a best-seller in France and Germany and is causing much discussion in Britain.² Written as it is by an expert in the field of molecular biology with a flair for philosophical thought, it poses a serious challenge to Christian belief in the uniqueness of man and his need of redemption. Monod's undisguised aim is to demolish what he calls the 'anthropomorphic illusion'. Galileo in removing the earth from the centre of the cosmos failed to achieve it, advances in biology at the molecular level, he claims, give every promise of succeeding—in fact have succeeded. 'We would like', he says, 'to think ourselves necessary, inevitable, ordained from all eternity. All religions, nearly all philosophers, and even part of science testify to the unwearied heroic effort of mankind desperately denying its own contingency.' Armed with the latest advances in molecular biology he sets out with overweening confidence and in places superb skill to lay bare the evolutionary process from the level of simple molecules to the greatest mystery of all, human consciousness. Not content with that achievement he then offers a panacea for the modern spiritual malaise—a formidable undertaking.

Monod stands in the tradition of materialistic philosophers dating back to the Greek philosophers Democritus and Epicurus and the Roman philosopher-poet Lucretius. He has more facts at his command but less poetry. Strangely he ignores this tradition and makes a simple opposition between the objectivity of science and 'vitalistic' and 'animistic' philosophies. 'Vitalistic' theories place the teleonomic principle (that which preserves and reproduces the structural form) in the heart of living matter, i.e. these theories imply a radical distinction between living beings and inanimate matter. 'Animist' theories, on the other hand, postulate a universal teleonomic principle and they see man as the perfect product of a universally oriented evolution. Man appears as the necessary culmination of this universal teleonomic principle. Monod briskly disposes of Henri Bergson (a metaphysical vitalist), Driesch, Professors Elsässer and Polanyi (scientific vitalists) and in like manner those of the animist camp—in particular Teilhard de Chardin, whose intellectual spinelessness shocks him. He notes, rather sarcastically, that Teilhard was a member of that order which, three centuries earlier, Pascal assailed for its theological laxness. Even Hegel and Marx come in for rough handling—'to make dialectical contradiction the fundamental

¹*Chance and necessity*, by Jacques Monod, Collins, 1972.

²E.g. Review by Stuart Hampshire, *Observer* 7/5/72, and by Peter Hodgson, *The Tablet*, 13/5/72.

law of all movement, all evolution, is still an attempt to systematize a subjective interpretation of nature, showing it to have an ascending, constructive, creative intent, a purpose; in short, to make nature decipherable and morally meaningful'. This is animist projection and Monod will have none of meaning and purpose, they are excluded from his philosophy.

Having cleared his opponents (animists and vitalists) from the arena he begins his 'tour de force'. The central portion of his essay is a brilliant exposition (somewhat above the level of the non-scientist) of the molecular basis of cellular activity, of the complex cybernetic system of the cell and of the evolutionary process at the microscopic or molecular level. It is fascinating reading and the main momentum of his essay arises from the masterly fashion in which he handles the bewildering complexity of cellular activity. Remarkable achievements in the fields of molecular biology and genetics (dating back a mere quarter of a century) are surveyed with the sure touch of a master. Proteins are the essential molecular agents of teleonomic performance¹ in living beings. Even a simple bacterium weighing 5×10^{-13} gram contains over 2,000 different proteins. For the higher mammals, such as man, the figure is close to a million. From a discussion (notable for its lucidity) of the molecular structure of proteins and the prodigious complexity and efficiency of one class of proteins, enzymes, in carrying out a preset programme in the cell (enzymes, in fact, exercise a 'cognitive function'), Monod proceeds to discuss the cybernetics of the cell. By human reckoning the cybernetic power at the disposal of the cell is astronomical. In many ways living beings (or rather cells) are comparable to machines but essentially different in that they have the ability to reproduce and transmit 'ne varietur' the information corresponding to their structure. The process of spontaneous and autonomous morphogenesis is based on the stereospecific recognition properties of proteins and it is primarily a microscopic process before manifesting itself in macroscopic structures.

Before proceeding Monod looks at an old quarrel between 'reductionists' and 'holists'. The 'holist' school of thought considers that the attempt to reduce the properties of a very complex organization to the sum of the properties of its parts ('reductionism') is doomed to failure. Molecular biology illustrates, he claims, the sterility of the 'holist' thesis. To be fair to Monod it must be admitted that at the cellular level his case is a strong one. 'In a very real sense', we are told, 'it is at this level of chemical organization that the secret of life (if there is one) is to be found.'

The virtual identity of cellular chemistry throughout the entire biosphere, a discovery of the last quarter of a century, makes the problem of reproductive invariance still more acute and paradoxical.

¹Teleonomic performance can be regarded as corresponding to a certain quantity of information which must be transmitted.

'If chemically, the components are the same and are synthesized by the same processes in all living things, what is the source of their prodigious, morphological and physiological activity? And still more puzzling, how does each species, using the same materials and the same chemical transformations as all others, maintain, unchanged from generation to generation, the structural norm that characterizes it and differentiates it from every other?' We now know the answer to the problem, thanks to advances in molecular biology of the last few years: the universal components—the nucleotides (four of them) and the twenty amino acids are the logical equivalents of an alphabet. The biosphere is written in this alphabet in the form D.N.A. (deoxyribonucleic acid) nucleotide sequences. Disturbances or mutations in elements of the D.N.A. sequence are automatically reproduced. Such disturbances are due to chance. *'Pure chance, absolutely free but blind (is) at the very root of the stupendous edifice of evolution.'* And as Monod notes with glee: *'There is no scientific position, in any of the sciences, more destructive of anthropocentrism than this one, and no other more unacceptable to the intensely teleonomic creatures that we are'*. As pointed out by Peter Hodgson and Stuart Hampshire, Monod does not make it clear what he means by chance. And a good deal of space would be required to discuss it fully—certainly it is clear that Monod himself shows confusion in using it. For instance, he confuses chance, randomness, and accident.

'Natural selection then operates upon the products of chance in a domain of very demanding conditions from which chance is banned. It is not to chance but to these conditions that evolution owes its generally progressive course.' Natural selection is not to be identified with the struggle for existence. It is a far richer concept, the differential rate of reproduction. Monod is a far more materialistic philosopher than Epicurus or Lucretius. Historians and Philosophers of Science may find it interesting that Epicurus postulated atomic determinism modified by a certain 'swerve' or free will of the atoms. For he saw this as necessary to preserve the existence of free will in man. For atomic determinism Monod substitutes the necessity inherent in the replicating and translation processes of D.N.A. and for free will he substitutes chance mutations in D.N.A. and the action of conditions on chance mutations to produce evolution; for only in chance mutations can we find the richness necessary for evolution.

It may seem a long jump from cellular activities to the rich array of living things, and an impossible leap to man, self-consciousness and the development of language. Monod is undaunted. 'Linguistic analysis in depth reveals one basic form common to all languages beneath their boundless diversity . . . this form must be considered *innate* and characteristic of the species . . . linguistic capacity revealed in the course of the brain's epigenetic¹ development is today part of

¹All processes of structural and functional development.

“human nature” itself defined within the genome in the radically different language of the genetic code.’

Up to this stage of the argument Christians could give qualified assent. Man is the result of an evolutionary process, whose chemistry, at least at the cellular level, is now fairly well understood. However, to deny purpose and meaning in the emergence of living beings is a very different matter and the scientific facts cannot be made to support the thesis that ‘chance’ (blind, purposeless and meaningless) is the cause of their existence and the evolutionary process. This, of course, would require a good deal more discussion than is permitted here. Monod’s only answer to such a statement is one that is often used by philosopher-scientists; of course the ideas are unpalatable and the reason is simple: the scale we are envisaging transcends the categories of our immediate experience. The infinity of the cosmos has been used in the past to pulverize man into insignificance; in like manner the astronomical complexity of chemical processes of life is used to cow his intellect.

Now that the man has been explained, only the last hurdle remains to be surmounted. *The seeming presence within us of a spirit, the centre of self-consciousness, is an illusion*, and only by giving up this deeply rooted illusion can we ‘begin to recognize the complexity, the richness, the unfathomable depth of the genetic and cultural heritage and of the personal experience, conscious or not, which together make up this being of ours, unique and irrefutable witness to itself’. Monod would substitute this richness and complexity, which he calls ‘soul’, for the spiritual principle or soul in the Christian sense. There is no argument here, merely assertion and rhetoric.

The final chapter in the book takes on the tone of a sermon, and is decidedly confused. Speculation on the transition from the communication of actual experience to the expression of subjective experience or ideas leads to a discussion on behaviour as a selective evolutionary pressure. He makes the interesting observation that the ‘struggle for life’ (in the form of tribal and racial warfare) which plays a minor role in the evolution of species is an important evolutionary factor in man. ‘And once that behaviour ceased to be primarily automatic and became cultural, cultural traits themselves inevitably exerted their pressure upon the evolution of the genome. This was so until the moment when the accelerating pace of cultural evolution was to mean the genome’s complete separation from it.’ So we have the situation in modern societies where there is nothing ‘natural’ about selective pressure in the Darwinian sense to the extent that it does not favour the ‘survival of the fittest’. This leads him to deplore the genetic degradation in modern societies. Intelligence, courage, ambition and imagination ensure personal success but not genetic success. Those with low I.Q. are breeding faster and the human race is faced with a degradation of its precious genetic heritage—‘conditions of selection-in-reverse are a definite peril to

the species'. A nauseating attitude which manifests the modern spiritual malaise which Monod so much deplors. Here is the immediate problem (the spiritual sickness which hangs over 'our advanced societies) which we must give our attention to. Genetic degradation caused by those of low I.Q. producing a more numerous progeny will not be serious for about ten to fifteen generations. Our first concern should be to avert the spiritual malaise of the present age. In a mere dozen pages or so until the end of the book, Monod offers a trite and glib programme for the renewal of modern man. Within us there is a 'profound disquiet which forces us to search for the meaning of existence'. Only 'explanations' can assuage man's anxiety. But we are told we must abandon such attitudes. What does Monod offer us? 'In the course of three centuries, science founded upon the postulate of objectivity, has won its place in society—in man's practice, but not in their hearts. . . . For the first time in history a civilization is trying to shape itself while clinging desperately to the animist tradition in an effort to justify its values, and at the same time abandoning it as the source of knowledge, of *truth*. The liberal societies of the West still pay lip-service to, and present as a basis for morality, a disgusting farrago of Judeo-Christian religiosity, scientistic progressism, belief in the "natural" rights of man, and utilitarian pragmatism.' Monod has clearly left the path of reasoned argument. The book ends on a note of deep gloom. 'The ancient covenant is in pieces: man at last knows that he is alone in the unfeeling immensity of the universe, out of which he emerged only by chance. . . .' Hardly a cure for the sickness he so obviously laments. Even around 300 B.C. Epicurus opposed such a mode of reasoning in discussing the materialistic philosophers of his day. 'It were better to follow the myths about the Gods than to become a slave to the destiny of the natural philosophers: for the former suggest a hope of placating the Gods by worship, whereas the latter involves a necessity which knows no placation.' At least this is a psychologically sounder position. And yet how much more responsive to man's inner disquiet and conducive to action is the Christian message of the uniqueness of man, made in the image of God, redeemed by the Son and impelled by the Holy Spirit.