Teleology

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TELEOLOGY.*

IN the science of biology there are still many unsolved problems and many unsettled questions, and the scientific world no less than the theological is divided into schools of thought whose leaders differ profoundly from one another on many important matters connected with the origin and development of life upon the earth. The followers of De Vries and Mendel press their theories of mutations and suddenly appearing variations, with the consequent recurrence of periods of stability followed by periods of variation, against the older and stricter Darwinians, and minimize to the utmost the fact of natural selection. The much-vexed question of the heritability of acquired characters cannot yet be regarded as finally settled. Again, the new school of vitalists, who hold that life can only be explained by the introduction of a mysterious vital force which cannot be analysed into physical or chemical elements, though their theories may still seem to be somewhat crude—not having been fined down by the progress of discussion, are yet not to be wholly neglected, and can claim the support of so distinguished a scientist as Sir Oliver Lodge.

The time is long past, however, when the disagreements and the unsolved problems could be pressed by even the most moderately instructed apologist as an argument against the doctrine of evolution in general. The doctrine has made good its position in biology for good and all, has laid hold of the popular mind, and has come to influence our thought in every sphere of life as well as in the sphere of Natural Science. The idea of evolution is one of the dominant ideas of our time, and

**The Natural Theology of Evolution*, by J. N. Shearman.
(George Allen and Unwin.)

no philosophy is more popular than the philosophy of the modern Heraclitus, Professor Henry Bergson, who seeks to explain the whole world and the whole course of things as one great system of ceaseless change and growth.

We must all rejoice at the progress of knowledge, and Christians must surely be convinced that the discovery of new truth can never shake the foundations of their faith; but yet, they may surely be pardoned if they feel a certain sorrowful regret when they are told—as we are constantly told now-a-days—that the doctrine of evolution has completely destroyed the old popular argument from design. The argument from final causes is, as Kant has told us, “the oldest, the clearest and the best fitted for common sense.” It won a tribute of respect from so convinced an unbeliever as John Stuart Mill, and, as handled by Paley, its force seemed almost irresistible. But there is no doubt that the idea is very widely prevalent that the argument can no longer hold its ground in the face of modern scientific discoveries. Such was not indeed the belief of the eminent Erasmus Darwin, grandfather of Charles Darwin, when expounding his peculiar evolution theory. His work closes with the words, “What a sublime idea of the might of the great Architect! the Cause of all causes, the Father of all fathers, the *Ens entium*. For, if we could compare the Infinite, it would surely require a greater Infinite to cause the causes of effects than to produce the effects themselves.”

These words are surely as true to-day as when Erasmus Darwin wrote, and no greater service can be rendered to the faith than to show how the argument from design can be stated in accordance with our point of view to-day, governed as it is by the idea of evolution.

The Rev. J. N. Shearman then deserves our gratitude and warm appreciation for his effort to put forth anew the argument from design. Mr. Shearman is a Belfast clergyman, and must have by no means an idle

life; but yet he has succeeded in writing a most interesting and readable book, in which he gives evidence of much accurate scientific knowledge, and which must have cost a great deal of careful labour.

Mr. Shearman's work is essentially popular. In part i. he sets forth Paley's Common Sense argument with enlargements and comments, and asks whether it is not just as convincing as ever to ordinary common sense. In part ii. he ventures on what professes to be a more abstract and philosophical statement, but we cannot by any means regard this as the most successful portion of his work. Mr. Shearman is a man of science, and like many pure scientists he seems to have an inveterate distrust and dislike of Philosophy.

Science, according to him, is only common sense thinking clearly and observing carefully; but philosophy is mere idle dreaming, and philosophers are mere dreamers spinning idle and senseless theories out of their own brains without the smallest reference to reality. It would be well if men of science could come to realize that, after all, philosophy too is only common sense dealing with the same world as the men of science, but trying to take wider and more comprehensive views and to embrace deeper aspects of the subject.

Part iii. is the most interesting of all, consisting of a series of studies, well and beautifully illustrated, of a number of interesting and striking organisms in which the marvellous complexity and the admirable adaptation to environment seem to compel the acknowledgment of a designing Mind. In part iv. certain difficulties and objections are considered and disposed of.

The argument as set forth in these pages is forcible and impressive. It will always be forcible and impressive. The marvellous complexity of the human eye and of the pigeon's wing, so admirably described by Mr. Shearman; the wonderful devices by which plants are fertilized by bees and other insects: these and all the innumerable instances of adaptation of organism to

environment must inevitably suggest to the human mind the thought of a purpose and an infinitely wise Designer. Even if our knowledge of palaeontology, embryology and biology were to be so vastly increased that we could trace out step by step with absolute completeness the whole development of life on the earth from the first microscopic beginnings to the present day, we should still feel that, looking out on the whole world of life, we must ask whether by any possibility all this could have come about without the guidance of an ordering and controlling mind. But yet, we must recognize frankly that the argument does not appeal as absolutely convincing to many and, we must believe, candid thinkers. Even sincere theists may fail to be impressed by the argument from design. This, for example, was the case with so devout a man as the late John Henry Newman. Mr. Bateson, to quote an expression from his Presidential address to the British Association at Melbourne, would describe the argument as "teleological fustian" and would advise us to base our faith on "the impregnable rock of superstition and to abstain from direct appeals to natural facts." The man of science, watching the growth and development of the tiny cell, the breaking up and separating of the nucleus and the gradual building up on old familiar lines by the addition of cell to cell of a new body, may, like the late Henry Drummond, be impressed with the feeling of the working of an infinitely wise mind; but it seems just as likely that he may come to regard this work of growth and progress as no more remarkable than the rolling of a stone down a hill side. Nor is it only the trained man of science who may fail to be impressed by the evidences of design. The man in the street is now familiar, as a matter of course, with the idea of evolution, and feels that Paley's argument is not so convincing as it was felt to be when people thought that species were immutable, that the various classes of animals and plants had always been just the same from the beginning as they are now, and

the challenge had to be met, How can these things be if they had not been made by someone who understood all about them?

Now it is quite possible that the man in the street, reading Mr. Shearman's book, might say, "So far as I can see you have not really taken account of the change made by the doctrine of evolution at all. You repeat Paley's argument and enforce it by many beautiful examples; you tell me that the doctrine of evolution has made no difference; but you seem not really to hold the doctrine of evolution at all. You tell us that nothing can develop from itself into any higher form, that, for example, a whale could never develop into a bird. But surely the doctrine of evolution means just this, that such changes do occur. A common land quadruped has actually developed from itself into the whale we know: we can find the remains of his hind legs hidden away in his muscles and his forelegs turned into swimming flappers. Or again, a whale may not grow in course of generations into a bird, but is it not certain that a number of primitive reptiles have so grown? To this, no doubt, Mr. Shearman would reply that while it is true that the bird has descended from the lowlier reptile, such a change could not have taken place without the special intervention of a designing mind. Mr. Shearman seems to lay down two main principles: first, that chance could never originate any kind of orderly collocation, and secondly, that no change in an existing organism involving an alteration of plan or the passing to a higher type could ever arise by chance. It is evident that these are the very things to be proved, and that, apart from any convincing proof, to assert such principles so positively is simply to beg the question.

To take the second postulate first:—It does not seem so impossible now that living beings should have arisen by what is called chance as it did in Paley's days. The doctrine of Natural Selection has taken as firm a hold

on our thought as the doctrine of evolution in general. The stricter Darwinians and the Mendelians may dispute as to the part to be attributed to Natural Selection in development, and Professor Dendy may hold that highly organized forms of life might have originated, without Natural Selection at all, by their own inherent vitality. But all alike acknowledge that Natural Selection is a *vera causa* and that it has played an important part in the development of species. Now once the origin or first beginning of life in the very humblest form is granted, it may be argued that as the humbler organisms grew and increased they were naturally killed off in great numbers by hostile circumstances, but that, without any controlling or directing mind, a few of the stronger or more favoured specimens were enabled to survive. These in turn would transmit their life to successors who would undergo a similar round of experiences. Thus from generation to generation, by the accumulation of small variations, better and higher types of organism would originate and those adapted to different conditions would survive in the environment favourable to them, and thus in course of long ages of time the present varied organic life on our planet would be developed. That one type has passed into another again and again in the course of ages is established fact, as also that it is not at all easy to mark out the dividing line separating the different species from each other. Natural Selection being then accepted as a *vera causa*, it seems possible to hold that man, *e.g.*, has attained his present pre-eminence, not because he was *specially designed* to have dominion over creation, but that, having by the rise of small variations much improved by suitable mating, acquired a more highly involved brain and a prehensile hand, he succeeded in taking his present position of superiority. Now, in Mr. Shearman's book it seems to the present writer there is no satisfactory attempt made to cope with such difficulties as these, which are undoubtedly

widely felt at the present day. The only argument in support of the theory that no chance variation of type is possible seems to be that the effect cannot contain anything that was not already in the cause. Does an acorn contain an oak? Perhaps it will be said, "Yes, potentially." May it not be said that the world when it first cooled down from the molten condition contained in like manner all forms of life potentially? The theory of mutations with its corollary of periodic changes of form might seem very favourable for the teleologist; it is certainly harder to account for such sudden saltatory changes without introducing the idea of a Creator than to account for Darwin's accumulations of small variations. Mr. Shearman, however, does not make any use of Mendel's experiments except for the purpose of showing that such changes as can be produced never result in any change of type. At all events it is certainly better not to rest any argument on theories not yet fully accepted and which may be overthrown.

As the doctrine of Natural Selection seems to throw some doubt on the absolute certainty of the principle that organized beings cannot arise by what is popularly called chance, so, on the other hand, the results of modern research in physics and palaeontology may well lead us to question the dictum that, in its first beginnings, life could never have arisen by fortuitous causes from inert matter.

It is certain that at one time there was no life, as we know life to-day, on this planet. When the earth first cooled down, life under present conditions was not possible. Somehow or other in the course of long ages life appeared. The earliest forms of which we have any geological record, though much simpler and more primitive than the higher organisms of the present day, yet already exhibit a more or less complicated structure and, what needs to be specially noted, give evidence of having a long history of development behind them. We are forced to believe that hosts of simpler and more

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primitive forms must have passed away before the appearance of the oldest forms whose remains are embedded in the rocks of the pre-Cambrian period. If the development was continuous from the beginning, we are led to think of the first form of life as a microscopically tiny collocation of albuminoid atoms, with nothing that could properly be described as organization. If anyone were to suggest that the case of the production of such an albuminoid collocation, being one case in an enormously large number of possibilities, *must inevitably* occur at some point in a series of infinite length, ordinary common sense would certainly assure us that there was some absurdity involved in such a theory. Even if we could not give a rational account of our conviction, we should say, "We are quite sure that this is an unjustifiable application of the calculus of probabilities." It is apparently against some such silly hypothesis as this that Mr. Shearman's argument in part ii., with its elaborate discussion of the theories of unlimited and limited chance, is directed. That discussion contains some noteworthy and interesting suggestions, but yet it is impossible to feel satisfied with it as a whole as it stands. There are not really two different kinds of chance, as Mr. Shearman seems to suggest. The infinite or unlimited chance with which our mathematics cannot deal is not essentially different from the chance involved in the throwing of a couple of dice.

The truth is this, that in consequence of the limitations of our powers and the extent of our ignorance, our mathematical theory of probabilities can only deal with very limited series, and, even in such, can afford little real help or guidance in practical affairs in cases where our actual knowledge of the way in which things usually happen is at a minimum. If any biologist, therefore, were to assert that life *must inevitably* arise by spontaneous development in the course of ages, Mr. Shearman's argument would be sufficient to afford a crushing

refutation of any such nonsense. It is a different matter, however, when the biologist asks us, merely to admit the *possibility* of such a collocation as has been suggested, nor can we see that anything put forward by our author makes it impossible to resist this more moderate demand.

While we cannot conceive of a complicated organism springing into existence by mere chance, is it so impossible, given the infinity of past duration, to believe that a collocation or number of collocations of albuminoid atoms, capable in some dull way of responding to stimulus, of undergoing combustion with oxygen, and renewing and increasing by assimilating nutritive material, should have arisen in the far off ages when this old world was first cooling down into a solid mass? It is only the first step that counts, and once the primitive ancestor of the modern germ plasm is postulated, every step onwards to the present highly developed organisms may be considered possible. There is a chance of fifty millions to one against the survival of so highly developed an organism as a sturgeon's egg, and this and similar facts are often adduced to show the improbability of the origin of life by any chance collocation. But may not the argument be made to tell the other way? Granted that the solitary sturgeon's egg survives by mere chance without the watchful care of a guiding Creator—and this is what the argument must imply if it is to have any force—the series of eggs laid by a sturgeon is only a very limited series of some two millions, the period of the sturgeon's fertility is a comparatively brief period. If under these circumstances a highly organized individual succeeds in surviving, what might be considered possible in the infinite ages of past duration, making allowance for the simplicity of the earliest forms of life?

Again, it will always be true that the theist will probably be more impressed by the spectacle of God's working by the operation of natural causes through an

the challenge had to be met, How can these things be if they had not been made by someone who understood all about them?

Now it is quite possible that the man in the street, reading Mr. Shearman's book, might say, "So far as I can see you have not really taken account of the change made by the doctrine of evolution at all. You repeat Paley's argument and enforce it by many beautiful examples; you tell me that the doctrine of evolution has made no difference; but you seem not really to hold the doctrine of evolution at all. You tell us that nothing can develop from itself into any higher form, that, for example, a whale could never develop into a bird. But surely the doctrine of evolution means just this, that such changes do occur. A common land quadruped has actually developed from itself into the whale we know: we can find the remains of his hind legs hidden away in his muscles and his forelegs turned into swimming flappers. Or again, a whale may not grow in course of generations into a bird, but is it not certain that a number of primitive reptiles have so grown? To this, no doubt, Mr. Shearman would reply that while it is true that the bird has descended from the lowlier reptile, such a change could not have taken place without the special intervention of a designing mind. Mr. Shearman seems to lay down two main principles: first, that chance could never originate any kind of orderly collocation, and secondly, that no change in an existing organism involving an alteration of plan or the passing to a higher type could ever arise by chance. It is evident that these are the very things to be proved, and that, apart from any convincing proof, to assert such principles so positively is simply to beg the question.

To take the second postulate first:—It does not seem so impossible now that living beings should have arisen by what is called chance as it did in Paley's days. The doctrine of Natural Selection has taken as firm a hold

instinctively that it is fantastic and improbable. It involves an admission that the created world does not exhibit marks of infinite wisdom—to say nothing of goodness—it removes the Eternal farther than ever from us, while it surely does not relieve Him of responsibility, and therefore it cannot be regarded as a valuable adjunct to the argument from final causes.

The considerations which have been here put forward, if they have any value or soundness, suggest that while the old argument from design even as presented by Paley—much more as elaborated by Mr. Shearman—must still have great weight and will certainly be found helpful and convincing by very many, it is yet very desirable that the defenders of theism should seek for some broader and more comprehensive statement which will be more entirely in harmony with the thought of the present day—that in fact there is need for earnest and united effort to strengthen and improve the lines of defence.

In the first place, we ought undoubtedly to take account of Bergson's charge that the defenders of "Radical Finalism" have given themselves too much to considerations derived from the individual organism rather than to the world of life as a whole. We need not be terrified by the sneer that, in that case, we must hold that the lamb was designed to be eaten by the wolf. As a matter of fact we do hold that he was designed to be eaten by the man, and it does not seem to make much difference, so far as the lamb is concerned, by whom he is eaten.

The defenders of the argument from design have not taken account so much as they ought of the world of nature as a whole. The development of life on various lines, and especially on the two lines of animal and vegetable, the perfect and beautiful order consequently resulting, and the admirable provision of a suitable home for man, will be found by many more convincing than the elaborate structure of a pigeon's wing or a pecten's eye.

But, above all, in treating of Nature the theist must certainly pay much more attention to the fact of law and the significance of law. The defenders of teleology sometimes write as if there were nothing in the world apart from God but matter and force, but that in this blind world of blind forces and dead matter things *occasionally* occur which show that a thinking being has come down to upset the ordinary course of disorder. It is impossible to help feeling that Mr. Shearman's book frequently suggests this somewhat crude way of looking at things, though of course the author does not really think in this fashion, but has to write as one hampered by the exigencies of popular exposition.

Now, we must never cease to enforce the fact that besides matter and force there is another fundamental fact—viz., law—a fact which does not manifest itself here and there or now and then, but acts throughout the whole course of nature from the smallest to the greatest things. To the man of science, law is simply a statement of the way in which things are accustomed to act, and, *qua* man of science, he is not required to say more than this, just as *qua* man of science, he is not required to have recourse to the "hypothesis of God." But the philosopher and theologian cannot rest satisfied with this bare statement, but must insist that law implies much more than a mere possibility of recurring experiences, that by the very constitution of our minds, we are compelled to recognize the justice of the instinct which has led us to think of the manifestations of nature as the work of a lawgiver, that the very fact of law implies the presence of a controlling mind. If someone expresses surprise at the fact that, to a sceptical man of science, it is just as natural that a germ cell should build up an organism as that a stone should roll down a hill, he seems to think that the latter occurrence is a mere, by no means astonishing, matter of fact, while the former implies the presence of a wise designing mind. But if we take the trouble to think seriously we must come to

feel that the law of gravity by which the stone rolls down the hill is just as surprising, and just as truly a manifestation of mind, as the building up of an organism. It is the very presence of order and uniformity *throughout*, and not the occasional and unexpected phenomena which forces us to acknowledge that the universe is intelligible, or the manifestation of mind. What is unusual strikes us simply because it is unusual, while our eyes are blind to the wonder of the whole everyday world in which we live. We lift up our hands in amazement at the triumphs of science as revealed in wireless telegraphy. We say, What a marvel that one can flash a message through the air without any material medium from this to New York! If anyone suggests that it is just as great a wonder that one can flash a message from one side of a room to the other by waves of air communicated to the drum of a listener's ear he will probably be set down as more or less of an idiot. The apologist, when trying to enforce the significance of law, will however do well to avoid the temptation to put forward the reign of law as a sufficient explanation of the facts of pain and suffering. If law is a manifestation of mind, then the mind must be held responsible for all the results of law. The apologist may take account of such facts as that the life of nature is on the whole full of happiness and joy, so far as we can judge; that by a kind of pathetic fallacy similar to that by which we ascribe sorrow to gloomy clouds, we attribute to the lower creatures an amount of misery and wretchedness which can only be experienced by human beings, and so exaggerate the facts of pain and suffering; he may ask us to admit that the self-limitation of the Creator in creation may be subject to certain necessities which we cannot truly estimate. But when all is said that may be said, he will do well to admit that in the facts of pain and suffering there are mysteries which he cannot fully explain. But above all, he will point out that this whole course of evolution with its ceaseless struggle

for life has been admirably adapted to develop in the course of the ages an organism in which the life of the spirit and all high and holy virtues may be fitly exhibited.

This consideration leads us up to the thought that the argument from design can only be exhibited in its full force when we take account of man's life and destiny and boldly claim to take an anthropocentric view of the meaning of evolution.

For the man of science human beings are merely specimens of the species *homo sapiens*—a highly developed vertebrate whose structure and development afford an interesting and profitable object for scientific investigation. But, after all, it is only because he is *homo sapiens* that the man of science can give us any explanation of his development and structure: it is only these highly developed vertebrates who have the gift of making evolution and life with all their problems interesting and living facts. It is only *homo sapiens* who can derive such ideas as truth, love, righteousness from his experience, and make them guiding principles in his further development. In one word, it is only in human life and in the sphere of human experience that we find true worth and abiding value, and can feel that the whole course of evolution on earth may be justified as the preparation for what is of eternal significance.

We are thus led into a higher sphere—the sphere of the moral and spiritual—in which man finds his true home and in which the presence and fatherhood of God are recognized as experienced realities. This is the environment for which man was made and in which only he can fully realize himself. Natural Selection may indeed suggest that environments just happen to be there, and that organisms subsist because they happen to suit a given environment. But still the idea has been impressed on us that somehow or other, if an organism is developed for a certain environment, the suitable environment for the perfect development must

be in existence. Dimly and imperfectly we recognize that for man there is such an environment—in which the all-important fact is the presence of the living God—in which man may attain to the full realization of all his powers and capacities. In this lower world we can only strive and long for the full and perfect realization, but from the lessons of creation, no less than from the teachings of our own moral and spiritual nature we can joyfully lay hold on the hope of a full and perfect development to be revealed in God's own time.

In other words, the spiritual environment is a reality of present experience, which the man of science must admit if he really accepts the great fundamental moral principles; but we have not yet become perfectly adapted to it, and consequently cannot yet express its contents with clearness and fulness. But it puts the existence of a living God on a secure and certain basis.

Thus we are led up to what may be called the moral and spiritual arguments in support of theism, but we are also led to see that the moral and spiritual arguments must not or need not set aside all considerations from the sphere of natural science. It is not well or right that defenders of theism should be divided into different or opposing schools, puffing in opposition to each other *a priori*, *a posteriori* and ethical arguments in support of their position. The Christian must hold that all spheres of knowledge and all aspects of truth will lead up to the acknowledgement of God and joyful belief in His sovereignty and His love.

We learned to know and love our parents long before we had capacity to reason out the facts that our parents devoted much pains and labour to our happiness and comfort. In like manner mankind believed in some higher power or powers who controlled the course of events in the world and demanded man's reverence and worship long before they were able to formulate arguments from design or other arguments of Natural Theology.

Belief in God and the duty of religion were, we may believe, the result of that kind of intuition which according to Bergson is prior to and in many ways more sure in its touch than the teaching of intellect. Whether we accept Bergson's view or not, at all events we must hold that once intellect has come in its dictates must of necessity become predominant.

If our intellect exposes the falsity of beliefs intuitively held we can no longer cling to such beliefs. A chicken reared in an incubator may by intuition regard the fluffy shelter provided for it as a living loving mother, but if it develops a certain rudimentary intellect which enables it to discover that the shelter is only a dead contrivance, it will no longer be able to regard that shelter with personal affection or to look to it for guidance or protection.

If, again, intellect merely fails to bring us full and complete assurance that the theistic arguments as commonly presented are sound, the original intuition may indeed hold its ground and have some influence, but the result will be a state of miserable anxiety and uncertainty. More probably the intuition will not be able to maintain its ground at all, and the result must be absolute unbelief.

It is therefore the bounden duty of all to whom the Faith is the most important and precious thing in the world to try to the utmost of their power to keep in touch with the course of human thought and the advance of knowledge, and to make the intellectual bases on which our faith rests firm and secure, confident that nothing can ever overthrow the precious revelation which has been given us in our Lord Jesus Christ, or give us ground to doubt of the existence and love of our Heavenly Father.

Since the above article was written and, in fact, when its pages were already in print, the sad news reached us that Rev. J. N. Shearman had been called very

suddenly to his rest. By his death, which took place on the Fourth Sunday in Advent, the Church of Ireland loses an able and devoted son, from whom we should have looked for still further contributions of value and importance in defence of Christian truth.

When writing the foregoing article I looked forward to the favour of a reply from Mr. Shearman in which my criticisms should have been dealt with and my own suggestions reviewed. I felt sure that the discussion would be conducted in a spirit of candour and friendliness, and that it would have tended to advance the cause which Mr. Shearman had at heart.

On some points in Mr. Shearman's book I might have dwelt with a little more fulness, had I not anticipated such a discussion, but at all events it is a satisfaction to me to feel that there is nothing in the article which I could now wish unsaid or said differently. I have indeed expressed a certain amount of dissatisfaction with some of Mr. Shearman's arguments, or with the way in which he has stated his arguments, but if he were still with us to reply one feels sure that such criticism is what he would desire.

W. M. FOLEY.