

THE Presbyterian Quarterly.

No. 48--APRIL, 1899.

I. GENESIS OF THE WESTMINSTER ASSEMBLY.

For great events in either Church or State there are usually well defined periods of preparation. Such events do not arise suddenly, but come to pass in their fulness of time.

It is with them as with a mighty river. Its vast volume of rushing waters is the product of many smaller streams, and these in turn are made up of many lesser rivulets, which, gathering from distant mountains and flowing through fertile plains, combine to make the great river—the St. Lawrence, the Mississippi or the Amazon; the Rhine, the Danube or the Nile. To understand the river aright, we must trace its various converging streams to their respective sources, in the recesses of lofty mountains, in the depths of trackless forests, or amid the loneliness of distant lakes. Thus explorers have sought the sources of the Nile, the Mississippi and the Amazon, and in this way reliable geography is made.

So it is with the Providence of God, as it works out its great movements, alike in the life of nations and in the history of the Church. These movements can only be rightly understood by tracing the various streams of influence

VI. THE RECOIL OF EVOLUTION'S ASSAULT UPON TELEOLOGY—A REVIEW OF THE "ARGUMENT TO DESIGN."

I should perhaps preface this paper upon the Recoil of Evolution's assault on Final Causes, by the statement that in its preparation I have been little concerned with the bearing of Evolution upon Christian Dogmatics.¹

That there is substantial unanimity of opinion among scientists concerning the great law of development will hardly be called into question to-day ; that the triumph of the doctrine of Biogenesis has been so far a vindication of the position of Supernatural Religion, and that in spite of the substantial unanimity of opinion concerning the general factors of the problem, there is a wide and widening divergence of scientific opinion in regard to those phases of Evolution that had seemed to involve the integrity of the Scripture records, cannot, I think, be successfully controverted.

For the sake of brevity, and to emphasize the strength of the teleological position, I have assumed as proven many things which as yet are merely working hypotheses, and to which I should otherwise enter a most emphatic dissent.

The great central problem around which the world of modern thought is revolving is the existence of God. It is not a problem born of ecclesiasticism, nor indeed primarily the problem of Christianity, but the great problem

¹It should be noted in explanation of the style of certain passages, that the article was prepared for a Club of Gentlemen, and was one of a series of three papers, the other two being upon "Evolution" and "The Physical Basis of Life." This article was the second of the series and designed as an *ad hominem* argument in reply to the paper on "Evolution" by a pronounced "Evolutionist." That the writer cannot be so classed doubtless need not be stated.

of all philosophy. The age has been, indeed, even in the nomenclature of the most advanced science, pre-eminently a religious age; there have been gods many and lords many. We have been treated by turns to a "Religion of Humanity," the "Religion of Cosmism" and the "Religion of the Unknowable." Such terms, however, are meaningless, when we recognize the fact that they have at one blow stripped the conception of God of the one element that makes it possible that we can have towards him any of those sentiments that are inseparably associated with the idea of religion—the attribute of personality. And however ardent a devotee one may be of these new religions, with the "virtual negation of a personal God, the universe," as one confesses, "must have lost its loveliness," and the soul be left to "face, godless and alone, the gray, awful waste of waters, whose horizon is eternity, with no star in the infinite night for a pole, and no hope of a haven at any time."¹ This is just the pitiable condition to which, it is boldly affirmed, we have been brought, and however pitiful, it must be accepted. To this Teleology enters its protest, and upon purely philosophical grounds, affirms an intelligent, personal God, as the explanation of the phenomena of the universe.

The argument has found its exponents from the earliest history of philosophy. It is not merely the Psalmist of Israel that sings of "heavens that declare glory of God, and a firmament that sheweth his handiwork," but the evidences of order in nature led Pythagoras and Anaxagoras to believe in a Supreme Intelligence as an explanation of that order. Aristotle declared that the "heavens and the earth hang on final causes," Socrates elaborates the article at length in the "Memorabilia," and Plato not merely develops it in the "Timaeus," but his ideal of order and harmony is based upon the conception of God, as the norm of all ideals.

¹The Great Discourse, p. 11.

Cicero unfolds the argument with rare force and beauty in the "De Natura Deorum," and the literature of the Fathers and Schoolmen is filled with it; while Paley popularized it by his illustration of the watch and the savage, as it had never been before.

During the last half of the century, however, the argument has been subjected to a constant fire of adverse criticism.

I shall endeavor to show that much of this criticism either obscures the real question at issue, or is directed not at the argument, but the manner in which it has frequently been stated. I shall then endeavor to state briefly the argument itself, as illustrated in organic and inorganic nature, considering those criticisms that are directed at the principle involved, and shall lastly sketch briefly the recoil of Evolution's assault, in the elucidation and strengthening of the teleological position.

(1) Of that criticism that obscures the real question at issue we have a striking example in Kant, who remarks, concerning the argument, that "it causes our belief in a divine author of the universe to rise to an irresistible conviction" ("Critique," p. 383), and criticises it on the ground that it at most "demonstrates the existence of an architect, but not of a creator of the world." Others affirm, that "Nature red in tooth and claw with rapine shrieks against" this creed; while Comte adds that the "elements of the cosmic system are not disposed in the most advantageous manner," and modestly insinuates that he could have designed a far "happier arrangement."

It is doubtless sufficient to reply to both these criticisms that the teleological system does not profess to be independent either of the cosmological, the ontological or the purely theological proofs, that it professes to prove neither the creation of the world-matter nor specifically the benevolence of God.

When Mr. Spencer affirms that the cause of the uni-

verse cannot be apprehended as intelligent, because the finite man cannot comprehend the infinite; he ignores the fact that to give genuine assent to any proposition, it is the predicate and not the subject that must be apprehended *per se*¹ and in the proposition the "Cause of the universe is an intelligent cause," which is the affirmation of Teleology, it is not claimed that this cause can be known in itself, but only as it manifests itself, namely *qua* intelligent.

(2) Passing now to those criticisms due to the manner in which the argument has been stated, it is affirmed that Teleology is based solely upon analogy, and an analogy that will not hold, for in works of human art the architect works from without, while in nature the forces all work from within. While the argument has often been stated as though it were merely an analogy, it is more the inference to an intelligent Cause, for the evidence of order and adaptation in nature is as immediate and valid as the inference to the mind of the human artist from the character of his work. I can no more see or touch or directly cognize the mind of my neighbor than I can the mind of God.² I argue my neighbor's intelligence, not merely because he is a man, but because I see evidence of purposeful action, of subordination of the phenomena to a future result, and by as direct and cogent an intellectual process do we pass from the evidence of order and adaptation of means to end in nature to the affirmation of Mind as the explanation of that order and adaptation.

A review of the history of the argument shows that up to recent times, its exposition has largely been concerned with an accumulation of proof of the existence in nature of "order, definite proportions and means fit to produce certain effects," and to Hume and Kant is due the credit of

¹This doctrine of assent has never been more satisfactorily stated than by Cardinal Newman, "Grammar of Assent," page 14, but with a totally different application.

²Flint's Theism, page 158.

pointing out that a mere accumulation of illustrations of order and adaptation left untouched the real issue. There is no better established fact than that of the reign of order, that the earth is indeed a cosmos and not a chaos, but what is the explanation of the fact? Can it be explained on mechanical principles, by physical causation alone? The service to Teleology of this criticism has been enormous; it was seen at once that the question at issue did not involve the fact of order or of adaptation, but the inference to be drawn therefrom. As Prof. Flint has pointed out, there is no longer an argument from design, in which design is assumed, and then the statement boldly made, that 'every design must have a designer,' but it is the "argument to design." Do this order and adaptation manifest design?—(Theism, page 155).

The change in the method of stating the argument furnishes at once an answer to the oft-quoted passage from Bacon, in which he says, "The habit of seeking final causes in physics, has expelled from it the physical . . . and men reposing in appearances, have not given themselves to search for real causes." The objection has weight, and was designed to have weight, only against a false scientific method, and leaves the principle untouched.

(3) The teleological position has perhaps never been better stated than by M. Janet (Final Causes), "All that show order, proportions well chosen, and means fit to produce certain effects, show also an express end, and consequently a formed design and a well regulated intelligence."

Teology thus bases its argument upon the doctrine of Efficient Causes—every effect must have a *causa sufficiens*.

This is emphasized by M. Janet, in his development of the Method of Concordance in Inductive Logic. "This Method," says he, "is governed by the following Law :

"When a given number of phenomena, different in every other point of view, yet present one common and constant circumstance, this circumstance may be given as the cause."

This law finds a striking illustration in the adaptation of the eye for vision. To one who understands anything of the science of optics, almost innumerable concurrences of independent phenomena are observed, yet all subordinated to, and conspiring to render possible, the act of vision.

It is to be noted that the phenomena are said to have conspired, not in order to, but so as to render vision possible, i. e., these various and independent causes of vision, the iris, the retina, the optic nerve, etc., are all so formed, are all so collocated, "both with respect to each other, and to the future phenomenon, the act of vision, as to produce a definite result."

The one common circumstance, which these independent causes present, is the act of vision, and if we would be true to the inductive principle, cited above, we must say that vision was the cause of the coincidence, and concurrence of causes.

Or in the words of M. Janet, "Every agreement of a complex whole, with a future phenomenon, more or less remote, must also have its reason, which is given in the future phenomenon itself."

To this must be added another law, which says that "a cause cannot act before it exists." The act of vision, then, cannot be the true cause of the coincidence and concurrence of causes which have rendered the eye fit for seeing, for vision is their result—is a future phenomenon, and cannot "act before it exists." The true cause, it is argued, must be found in what has been called the "idea of vision"—that is intelligence.

This wonderful adjustment of means to end, this collocation and combination of parts in the formation of a complex whole, which M. Janet thus illustrates in the formation of the eye, is manifest throughout the whole realm of nature. Biology is daily revealing a "subtlety and delicacy of adjustment of part to part, of part to whole, and whole to the surroundings in the organic world." The argument

from adjustment finds its proof also in inorganic nature. Chemistry with its doctrine of definite proportions, Astronomy with its revelation of the persistence of the law of order and adjustment throughout infinite space, Geology unfolding the reign of law throughout infinite time, have combined to strengthen the argument for a controlling, formative intelligence at work throughout the universe.

Nature has thus yielded to scientific investigation, aided by the microscope and telescope, a revelation of the reign of adjustment and order, mathematical relations and numbers, until, as has been said, "it seems a living arithmetic in its development and a realized geometry in its repose."

(4) Evolution, however, directs its keenest shafts of criticism at the very principle of the teleological argument.

It is boldly affirmed that Evolution offers an explanation of all phenomena, without the necessity for the intervention or superintence of Mind, at any stage of the process.

This explanation is found in the universal reign of Law—certain physical laws, the Law of the Survival of the Fittest, of Environment and Heredity, of Natural and Physiological Selection, and of the Persistence of Force, it is held, are sufficient of themselves to explain all the phenomena of the universe.

I cannot better state the supposed effect of Evolution upon Teleology than by quoting the words of the warm personal friend of Darwin—George Romanes: He argues that the structure of the eye may be "proximately due to the operation of physical causes. Thus for the value of the argument, let us assume," he says, "that natural selection has been satisfactorily established as a cause adequate to account for all these effects. Given the facts of heredity, variation, the struggle for existence, and the consequent survival of the fittest, what follows? Why that each step in the prolonged and gradual development of the eye was brought about by the gradual elimination of all the less

adapted structures in any given generation, and the selection of all the better adapted to perpetuate the improvement of heredity."¹

Thus, he argues, all special design is disproved, because the whole process is natural and due to physical causes.

It may be replied, however, that no consistent teleologist attempts always to prove *special design*.

If the higher Teleology be true, and all things constructed after a general plan, nothing surely interferes with our belief in special design except our inability to comprehend the working of an all-wise Intelligence able to embrace within its design every factor of the general plan, but the Teleologist is not called upon to prove this special design. Laws, Natural Selection, Survival of the Fittest, etc., are not "causes" in any true sense of the term, but simply expressions of the *modus operandi* of natural forces, in a word, Evolution is an historical and not a causal process, and these laws only formulæ for the manner in which observed phenomena operate, and the "immutability and uniformity" of these natural laws, an inference from experience. Surely, however, because a "thing has been conditioned is no reason why it cannot have been designed."

That the eye has been constructed so as to be capable of seeing is no reason why it may not have been constructed in order that it might see.²

Yet Huxley, Comte, and a host of others declare that when once this natural process has been described, the last word for design has been refuted, and henceforth the argument relegated to the superstitions of the past.

I give one other illustration of this species of reasoning from Mr. Huxley himself: "The teleological argument runs thus: 'An organ or organism (a) is precisely fitted to perform a function or purpose (b); therefore it was specially constructed to perform that purpose.'"

¹Thoughts on Religion, pages 64, 65.

²Flint's Theism, page 185.

“Suppose, however,” (in Paley’s famous illustration concerning the watch), “that any one had been able to show that the watch had not been made directly by any person, but that it was the result of the modification of another watch which kept time but poorly, and that this again, had proceeded from a structure which could hardly be called a watch at all, seeing that it had no figures on the dial, and the hands were rudimentary, and that going back and back in time, we come at last to a revolving barrel, as the earliest traceable rudiment of the whole fabric. And imagine that it had been possible to show that all these changes had resulted, first from a tendency in the structure to vary indefinitely, and secondly, from something in the surrounding world, which helped all variations in the direction of an accurate time keeper and checked all those in other direction, then it is obvious that the force of Paley’s argument would be gone. For it would then be evidently demonstrated that an apparatus thoroughly well adapted to a particular purpose might be the result of a method of trial and error, worked by unintelligent agents, as well as the direct application of appropriate means to an end by an intelligent agent.”¹

Most of us, however, I think, would hold, that it had been demonstrated only that this revolving barrel was the most remarkable piece of mechanism we had ever seen, and that the “tendency in the structure to vary, combined with the something in the surrounding world, which helped all variation in the direction of an accurate time-keeper and checked all variation in other directions,” was the very thing that most needed an explanation, which cannot be found in the “unintelligent agents” (?), by which the perfected watch was evolved out of the revolving barrel, and the fact that it was *accustomed* to do this sort of thing, would only add to our conviction that this marvelous mechanism was designed to do this very thing.

¹Lay Sermons, pages 330, 331.

Evolution has gone beyond this statement of Huxley, and affirms that not merely certain organisms are the result of these laws of development, but that the totality of phenomena in the universe, is the result of a "primordial molecular arrangement from which these phenomena are evolved."

This primordial molecular arrangement containing within it the possibilities of the cosmos, the potentiality of all life, demands a mind more comprehensive and wonderful than anything ever conceived of, in the mere orderly adjustment of means to end in any single product of nature's workshop, and so far from the mechanist hypothesis having displaced the doctrine of design, we are indebted to it for a higher Teleology, that finds its chief support in this boasted reign of law.

(5) It is evident, however, that the question has only been pushed back a step further. When we asked, What is the cause of the phenomena of nature? it was answered, The Laws of Evolution; when it is further asked, What is the cause of this historical process, Evolution? it is answered, Primordial molecular arrangement. The mind, however, cannot rest here, it presses the query, What is the cause of this "primordial molecular arrangement?" Mr. Spencer answers,¹ "The Persistence of Force"—this is the "unconditioned reality, without beginning or end. To this an ultimate analysis brings us down, and on this a rational synthesis must build up."

That is, given the doctrine of the persistence of force, and the cosmos can be accounted for. "Uniformity of law," says he, "inevitably follows from the persistence of force," and as this uniformity of law is the very thing we have supposed explicable only on the assumption of Intelligence, we have here an hypothesis that, if proven, would drive Teleology from the field. Mr. Spencer's theory has been shown to be "unsatisfactory to mathematicians, physicists

¹"First Principles," Chapter vi.

and logicians," but assuming it established, that it explains fully the phenomena of causation, it does not explain what is critical and most demands explanation, how it is that force and matter alone have produced a cosmos and not a chaos.

It utterly fails to explain the "determination of this force into the particular channel through which it flows."

As Romanes, who was at one time a supporter of this position of Mr. Spencer, says, "Physical causation cannot be made to supply its own explanation and the mere persistence of force even if it were conceded to account for particular cases of physical sequence, can give no account of the ubiquitous and eternal direction of force in the construction and maintainance of universal order."¹

We thus affirm a directing Mind-Intelligence as the true unconditioned reality without beginning or end.

Reviewing briefly the discussion, we find that Teleology, far from being weakened by Evolution's assault, is greatly indebted to it.

(1) To the controversy growing out of Evolution is largely due the clearer and more scientific statement of the doctrine of Final Causes, and the elimination of extraneous matter from the argument.

(2) The establishing of the fact of the universal reign of law, growing out of the hypothesis of Evolution and forming a corner stone of the theory, has forever eliminated Chance as an explanation of the Universe.

(3) Evolution, however, has not merely demonstrated the Reign of Law, by which the Teleologist is enabled to affirm that the universe is a cosmos and therefore the product of Intelligence, but it has gone further and demonstrated the existence of a Law of Progress, in which it is seen that this cosmic order is developing according to a plan that holds us and all things in a vast and yet vaster sweep.

¹"Thoughts on Religion," p. 72.

And with the aid now of this prophet of Science—for even the Saul of Evolution is among the prophets—the devout teleologist proclaims “One God, one law, one element, and one far-off divine event to which the whole creation moves.”

It is surely significant, that Evolution itself finds the climax of development, where the Teleologist has always affirmed it, in Man—the evolution of society, humanity, of the religious consciousness in the individual, are assumed to be the goal of the process—“The earnest expectation of creation, waiteth for the manifestation of the sons of God.”

(4) In pushing the hypothesis of Agnostic Evolution to its extreme but logical conclusion, in the assumption of the mere “persistence of force as the true, unconditioned reality,” explaining all the phenomena of the universe, Mr. Spencer has unconsciously done the cause of Teleology great service. Reduced to its “ultimate analysis,” the “peristence of force,” without the intervention of Mind to give direction to that force, does not, and in the very nature of the case cannot explain the phenomena of nature; and routed in the future here, it is evident that however startling may be the assumption of Evolution, it can never eliminate the proof of regulated intelligence at work through these forces.

(5) And lastly, to Evolution is indirectly due the explication of the doctrine of Causation—involving the proof of the immanence of Intelligence. This, indeed, is no new teaching, even the heathen poets declared of the great First Cause, “In him we live and move and have our being,” and Christianity has long ago developed the doctrine fully; but the attack on special creation has driven many theists to Deism in philosophy, and with a multitude, the God of nature had come to be conceived as a sort of *deus ex machina*, sitting since the seventh day of creation “on the circle of the universe and watching it go.” The new impetus given to scientific investigation has led to the

acceptance by a large body of philosophers of the dynamic theory of will—that all causation is in its last analysis of the nature of will-energy. Thus is explained how the immutability and uniformity of natural law are not inconsistent with a free intelligence, but are due to the self-consistency of that will—the immutability of nature is thus the faithfulness of the directing Mind to its plan founded in unerring wisdom. These laws are the systematic exercise of the volition of a Divine Being, whose supreme will is “not only the source of all law, but the working force of nature herself.”

“God is law, say the wise; O Soul, and let us rejoice,
For if he thunder by law, the thunder is yet his voice.”

In this doctrine (of the immanence) of the Intelligent Cause of the universe, we have the union of what have frequently been considered rival doctrines—personality and immanence—and again we exclaim with Tennyson,

“Then speak to him, thou, for he hears, and spirit with spirit can meet—
Closer is he than breathing, and nearer than hands or feet.”

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