

# THE PRINCETON THEOLOGICAL REVIEW.

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## I.

### JAMES McCOSH AS THINKER AND EDUCATOR.\*

#### I.—AS BELFAST PROFESSOR.

A SCOT, born in Ayrshire, on the banks of the "Bonnie Doon." of sturdy and God-fearing ancestry, who had played the man more than once in the struggle of the Covenanters against oppression—a scion of the great middle class of Scotland, made up so largely of cultivators of the land, who through the exercise of the proverbial thrift and intelligence of the "canny Scot" had forced an unwilling soil into fertility and had achieved easy circumstances—James McCosh inherited all the virtues of his class and ancestry. These formed the basis of his character, and held the secret of his unvarying success in the larger spheres in which he was destined to become an actor. Born of highly intelligent and conscientious parents, who possessed in full measure that tough moral fibre and that firm adherence to high ideals of religion and duty so characteristic of the Scotch, the parental traits entered as so much clean grit into the constitution of the boy and gave a pledge of the force he was to become in later years in his own and other lands. Young McCosh was fortunate in his home-life and training, thanks to a

\* The sources from which the materials used in the following article have been obtained are (1) *The Autobiography of James McCosh*, so ably and gracefully edited by William M. Sloane; (2) the works of McCosh, including books, pamphlets and addresses, a complete bibliography of which has been made out by Joseph H. Dulles, Librarian of the Princeton Theological Seminary, (3) and most important of all, a personal acquaintance ranging over twenty years, in which, as pupil and later as teacher in the department of Philosophy at Princeton, the writer had abundant opportunity to study McCosh's many-sided life.

#### IV.

### EVOLUTION AND THEOLOGY TO-DAY.

**I**DEAS, said the philosopher Comte, rule the world or throw it into chaos. For the past thirty years the idea of evolution has ruled the world of scientific thought, or as some believe, has thrown it into confusion. Certainly the influence which the evolution theory has exerted since the publication of *The Origin of Species* is one of the most remarkable facts in the history of modern thought. The idea of evolution—that of derivation or descent—was known to ancient Greek and to modern German philosophy, and scientific precursors of Darwin were not wanting in the biological field; but it is doubtless to Darwin's skillful advocacy that the present influence of the evolution theory, both in its scientific and its philosophic form, is mainly due.

The peculiarity of Darwinian evolution is, of course, its hypothesis of natural selection. To the arguments drawn from comparative anatomy, embryology and palæontology, and favoring the common origin of all organic forms, Darwin added an hypothesis, attractive in its simplicity and supported by familiar analogies, of the method by which new species were actually formed—the method of natural selection. In framing his hypothesis he wove together ingeniously the Malthusian theory of an overproduction of population and a consequent struggle for the means of subsistence, and the method of artificial selection of favorable variations, employed by breeders and horticulturists in the production of new varieties. In Darwin's application of these principles to organic nature as a whole, natural species take the place of artificially produced varieties, and the struggle for existence, taking the place of the horticulturist or breeder, results in a natural selection of those variations which are favorable for survival. The accumulation of such variations secured by heredity and continued struggle for existence would, it was argued, give rise to a new species. All that we need to assume, then, in order to account for all the forms of animal and vegetable life is a primitive living germ (or at most a very few of them) with power of excessive reproduction and

with minute, apparently chance, variations in the offspring. Natural selection would do the rest.

Such in barest outline is Darwin's theory of natural selection. Evidently it is easiest of application, and of proof or disproof, in the sphere of morphology or physical structure; but if it is to cover all the changes within the sphere of organic nature, it must account also for the development of consciousness, of instinct, of intelligence, and, in the case of man, of morality. To this task Darwin stood committed, and he attempted it, though, we believe, with doubtful success, in his *Descent of Man*. If a single law can account, not only for all varieties in organic structure, but for the origin and development of sentience, intelligence and conscience, it is but a step to suppose that a single law, not necessarily of course that of natural selection, can account for all changes in the universe whatsoever. It seems inevitable, then, that Darwinism should have developed into a sort of cosmical evolution, or philosophy of the universe, even though Spencer's *Synthetic Philosophy*, which avowedly contained such a system, had never been written. At any rate, this extension of the idea of evolution soon took place in popular thought, and it was regarded as not simply a biological hypothesis, but a comprehensive doctrine of change or progress, explaining as due to the operation of a definite law all the changes in nature or history—the change from chaos to cosmos, from nebula to solar system, from the inorganic to the organic, from protoplasm to the varied forms of organic life, from the unconscious to the conscious, from sentience and instinct to reason and conscience, from the fetish-worshiper to the worshiper of God. While few departments of human thought or investigation have remained uninfluenced by the dominance of the evolutionary idea, the influence has been especially strong in the so-called anthropological sciences, and psychology, ethics, sociology and the history of religion have been largely rewritten with evolution as their avowed constructive principle.

Christian apologetics perforce trimmed its sails to meet the new gales blowing down from the hills of scientific thought, and the bearings of the evolution doctrine in its various forms upon the doctrines of religion has been, for the past thirty years, one of the main topics of apologetic discussion. The attitude of theology toward evolution was, first, that of pronounced, or even violent, antagonism: then that of partial acceptance and incorporation; and there is now evidence that we have passed into a third stage, which may be called that of comparative indifference. It must be admitted

that these three stages are logical rather than strictly chronological, yet it is believed that they do represent roughly the real history of the successive attitudes of theology toward evolution. Evolution was first denounced as atheistic and immoral; then it was supposed, in some quarters, to supply new arguments and sanctions for religion and morality, and finally it is seen that the fundamental problems of theology, of metaphysics and of morals are not settled, but only set in a new form, by the account of the cosmic process which evolution attempts to give.

Let us look at the three successive attitudes a little more in detail.

We cannot wonder at the inhospitable reception which theology at first accorded to the new teaching. Evolution, in the hands of some of its most powerful champions, was claimed to be destructive of cherished articles of faith in religion and morals. The design argument was declared to have received its death-blow; chance took the place of intelligent purpose, natural selection of election, and spontaneous generation of creation. The simian pedigree of man, it was assumed, forbade him to aspire to any lofty destiny, and threw doubt upon the validity of spiritual belief. Morals seemed to have lost their divine sanction, and the new moral teaching showed a tendency to crawl upon its belly and eat the dust of the earth. And even if the moralist still advised us to be good as a matter of expediency, he was heard to add in an emphatic aside, "Be not too good!"\*

The period of hostility was succeeded by one of *rapprochement* and conciliation. It was found that scientific men could adopt evolution without losing their religious faith. As the evidences were weighed and the outlines of the theory became familiar, it was (with qualifications) endured, and then largely embraced by the theological world. New light, it was thought, had been thrown upon the methods of Providence, and the Scriptural idea of gradual development in the growth of the kingdom of God seemed to have received new emphasis and illustration from the facts of nature. If Paley's argument from the watch had to be modified, Mr. Huxley could be appealed to as admitting that evolution made more teleology than it destroyed. We could, it was seen, look forward as well as backward for the meaning of the developing process. If man had evolved so far already, who was to deny the possibility of further advance? Evolution could plainly be viewed so as to kindle, rather than quench, man's fairest hopes. The jewel is no less beautiful or valuable because dug out of the

\* See Leslie Stephen, *The Science of Ethics*, p. 418.

mine. Descent became ascent, and immortality but evolution at the end of its journey. We could believe, with Mr. Fiske, that "from man's origin we gather hints of his destiny, and the study of evolution leads our thoughts through nature to God."\*

That evolution should be thought to lead to these opposite conclusions aroused the suspicion that the inferences drawn were, in each case, due to the standpoint from which the theory was viewed, and were not necessarily corollaries of the theory itself. Evolution by natural selection, as taught by Darwin, may be regarded as a process in which chance or "happy accident" plays the principal rôle, or it may be viewed as a striking illustration on a large scale of intelligent purpose. Darwin himself, as we learn from his letters, wavered between these two views, and confessed himself to be in a "muddle" the more he balanced the arguments. As to the broader or cosmic type of evolution, its chief exponent, Mr. Spencer, significantly says in the last edition of his *First Principles*:†

"An account of the transformation of things . . . is simply an orderly presentation of facts; and the interpretation of the facts is nothing more than a statement of the ultimate uniformities they present, the laws to which they conform. Is the reader an atheist? The exposition of these facts will neither yield support to his belief nor destroy it. Is he a pantheist? The phenomena and the inferences as now to be set forth will not force on him any incongruous implication. Does he think that God is immanent throughout all things, from concentrating nebula to the thoughts of poets? Then the theory to be put before him *contains no disproof of that view*. Does he believe in a Deity who has given unchanging laws to the universe? Then he will find nothing at variance with his belief in an exposition of those laws and an account of their results."

This authoritative pronouncement from a leader of evolutionary thought, certainly not to be accused of theological bias, is of importance as indicating one, at least, of the "limits of evolution." The fundamental questions at issue between atheism and pantheism and theism cannot be decided in the court of evolution. The same seems to be true of the ethical problem. If we regard the mathematical-mechanical view of the world as the most fundamental, we shall be inclined to exclude from all stages in the process of development anything which goes beyond mechanical necessity, and deny to man the possession of powers which would raise him above the course of nature. On the other hand, if we hold an ethical-spiritual view of the world, our conviction that

"Man hath all that nature hath, but more,"

\* *Through Nature to God*, p. xii.

† Ed. 1900, p. 129*d*.

will be strengthened by the study of a progressive development whose obvious goal is the production of a free moral personality. In both cases, of course, our interpretation of evolution is determined by the presuppositions which we bring to the interpretation. If Mr. Spencer's contention, quoted above, is true—and we believe its truth will be generally conceded—it is apparent that theology and morals have not so vital an interest in the doctrine of evolution as has, in the past, been generally supposed.

Not only do the fundamental questions of religious philosophy present a limit to the application of evolution, but the history of religions seems to do the same. The evidence collected by Mr. Lang and confirmed by other testimony points to the survival among savage tribes of an early and comparatively pure belief in a Great Spirit, superior, if not supreme, and desiring righteous conduct on the part of men. Other evidences of religious decline may be found in the Greek, Egyptian and Hindu religions, and show that degeneration is as familiar a law in religious history as is progress. Mohammedanism, again, and to a less degree Confucianism, are examples of religions which have remained practically stationary for centuries. No single law, such as that of a change from the simple to the more complex or from the lower to the higher, can be applied indifferently to cases of degeneration, stagnation and progress. Hegel, in Germany, taught long ago that the evolution of religion took place according to the dialectic law of thesis, antithesis and synthesis; and Comte, in France, traced a development within his "theological" stage of human thought, from fetishism through polytheism to monotheism. It does not appear that the later applications of the evolutionary idea to comparative religion have been more fruitful than the earlier, nor that later writers have been any more successful in comprehending the varied forms which religion has assumed within any definite scheme of development.\* As a striking example of religious progress we have only to go to the history of the Hebrew religion as set forth in the Old Testament; but an arbitrary reconstruction of that history which denies to a Moses or an Abraham the possibility of monotheistic faith is certainly far from being justified by what we know of the development of ethnic religions.

\* Commenting on Prof. Jastrow's remark in his *Study of Religion*—"that scholars are pretty well agreed on two points: that the religious development of mankind proceeds in accordance with definite laws, and the development is, on the whole, upward"—Dr. G. W. Knox says: "Scholars cannot agree as to the definition of religion, nor as to its classification, and least of all can they set forth any definite laws in accordance with which it develops" (*Am. Journal of Theology*, October, 1902).

The most outstanding fact, perhaps, in the history of religion is the influence of great men who have impressed their beliefs for generations upon multitudes of their followers. All the great ethical religions (leaving Christianity out of account)—Judaism, Zoroastrianism, Confucianism, Buddhism and Mohammedanism—have been founded by such men. Were these men wholly the product of their time, so that the credit for their work may be transferred to the account of their ancestry and their environment? Or did they make a truly personal and original contribution to history? The answer to the question depends upon our metaphysics of personality. We wish here simply to point out its bearing upon our theory of the development of religion. If there is in the individual a unique element not to be accounted for by general laws, as Prof. Royce has contended in *The World and the Individual*, then, *a fortiori*, in the appearance of the men who have been the founders of the world's great religions we reach a limit of science and so of evolution.

The naturalistic attack in the name of evolution upon the strongholds of religion and morals has met with vigorous resistance of late from the side of the idealistic philosophy. Prof. Howison's *Limits of Evolution*, the interesting series of essays by a group of Oxford men entitled *Personal Idealism*, and notably Dr. Ward's *Naturalism and Agnosticism* are examples of this apologetic method. The idealist proposes a "short method" with evolution. You "cannot get to mind as an ultimate product of matter," says Edward Caird, "because in the very attempt to do so, you have already begun with mind." Briefly, the Neo-Kantian insists that mind cannot be the product of evolution, but is rather its presupposition, because mind supplies those principles of order and connection—such as unity, continuity, causation—without which evolution would be impossible. The very weapons of naturalism—such as the unity of nature, the universal reign of law, the unbroken continuity of development, in fact, the very conception of nature as an orderly system—were all forged in the camp of idealism, and are the ultimate products of thought. This is the epistemological limit of evolution, and is used to prove that man in his higher spiritual faculties is not the product of nature, but is really, in a sense, its maker.

We may recognize the force of the idealist's argument against materialism without being convinced adherents of the Neo-Kantian faith. Whether the mind really constructs nature, as the idealist insists, or only interprets nature, as intuitionists of the school of

Dr. McCosh and Dr. Martineau would fain believe, we must hold that the organizing principles which science finds in nature are rational principles, and so are ultimately referable only to Intelligence. Nor is it possible to regard the mind as a mere "pensioner on outward forms," a sort of mirror which nature has fashioned and polished in order to reflect herself. The sensational theory of knowledge, even with the aid of heredity and of the unlimited time which evolution has supplied, has not succeeded in bridging the gap between sensation and thought. At any rate those who believe that there are intuitive factors in knowledge—necessary principles not the result of the experience either of the individual or of the race, because underlying all orderly experience and making it possible—will believe, with the idealist, that in those synthetic principles of knowledge which we employ in the very framing of our evolutionary hypothesis, we have an element for which naturalistic evolution cannot account.

The limit of evolution which has been most often urged in apologetic discussion is the alleged failure of its attempt to bridge certain chasms in nature. The attractiveness of the evolution theory is largely due to the fact that it views natural history after the analogy of the growth of a plant from the seed. The oak is different from the acorn; its structure is more complex, and its myriad leaves and mighty branches could not have been foreseen from any examination of the acorn itself. Yet we find no break in the continuity of development between the acorn and the full-grown oak, and we say that wrapped up in the acorn is the potentiality of all stages of the oak's growth. So in organic nature, according to Darwin, the primitive germ was endowed with the capacity of developing, under the existing conditions of environment, into all the various forms of plant and animal life. So, according to Tyndall, the primitive atoms contained the seminal principle of cosmic development—"the promise and potency of all terrestrial life."

The question properly arises, How far downward and upward does the analogy of the growth of the plant from the seed extend? Can we extend it downward into the inorganic world, and upward into the sphere of conscious, moral or social phenomena? Darwin would extend it downward only to the beginnings of life, to the "one primordial form into which life was first breathed."\* Later evolutionists have quite generally regarded this primitive germ itself as the product of evolution. Let us see how the case stands. Scientists are generally agreed that there was a time when the tem-

\* *Origin of Species*, p. 419.

perature of our globe was so high that no life could be maintained upon it. How, then, did it make its appearance?\* If we exclude "the operation in time of an ultra-scientific cause," or special creation, we have left the alternative of spontaneous generation—life from the lifeless. In spite of the confidence now often expressed that living matter will yet be manufactured in the laboratory, it must be said at present that the case for spontaneous generation, or abiogenesis, has not been made out. What, then, is meant when we speak of the evolution of life from inorganic matter, or spontaneous generation? Here at last we must carefully distinguish between two uses of the word evolution—evolution as description, and evolution as explanation. A passage from Prof. K. Pearson's *Grammar of Science* may make this distinction clear:

"On the hypothesis of spontaneous generation we must conceive life as reappearing and again disappearing when and wherever the physical conditions are suitable. The hypothesis does not in the least *explain* the appearance of life; it merely formulates its appearance as a routine on the occurrence of certain phenomena. Whenever a planet, passing through the azoic stage, begins to consolidate and cool, then begins the chemical evolution which ends in the first stages of life; but *why* this succession of stages takes place is no more a subject of knowledge than *why* the sun rises daily. As we *describe* the latter so we could *describe* the former, were we capable of closely watching for millions of years the physical history of a planet."†

The difference between description and explanation is, in short, the difference between the *how* and the *why* of any occurrence, and it is only with the *how*, according to Prof. Pearson, that science should pretend to deal. A formula of science is merely an expression in "conceptual shorthand" of the routine of our perception, "a *resumé* in mental shorthand" of the sequence of sense-impressions. The law of gravitation, for instance, sums up concisely a multitude of our perceptions, but does not in the least explain *why* bodies fall to the earth. But is the spontaneous generation of life entitled to take rank with the ordinary formulas of science, even on this descriptive level? Does it tell us how life was evolved? We have here no routine of perceptions which we can sum up in conceptual shorthand, not even one observed case from which to infer under what conditions other cases might be observed. The succession of stages in the evolution of life has to be hypothetically constructed, and millions of years and an unknown intermediate substance between inorganic matter and protoplasm have to be

\* The curious suggestion of Lord Kelvin that the first living germ was brought to the earth by some meteorite only pushes the question further back. As is well known, Lord Kelvin has recently asserted his belief in the creative origin of life.

† *The Grammar of Science*, pp. 416, 417.

assumed. Even so we are not sure that "chemical evolution," however long carried out, would, under any possible conditions, end "in the first stages of life." When the conditions are most favorable, when the earth "passing through the azoic stage begins to consolidate and cool," we should expect an abundant evolution of life, but, according to Prof. Pearson, the laboratory of nature produced on our planet only a single "protoplasmic drop or grain;" for he has told us that the evolution of all forms of life from some such "simple unit" is a scientific formula "so powerful as a means of classification and description that no rational mind is likely to discard it."\* Spontaneous generation seems, indeed, so frail a bridge that we ought not to wonder that it has only been crossed but once. Plainly, the "evolution of life" is not a descriptive formula comparable to the ordinary generalizations of science.

When evolution is regarded as explanation—that is, assignment of an adequate cause—its difficulty in accounting for the origin of life is even more apparent. No *vera causa* has been assigned. Biological laws, such as the struggle for existence, do not apply in the inorganic world, nor do physical laws, such as "the integration of matter and dissipation of motion," suggest even faintly how life came to be evolved. The only mode of explanation is one which Prof. Pearson rightly condemns—the assumption as a property of inorganic matter of "something-which-is-not-yet-life-but-which-develops-into-life." This mode of explanation, though familiar, does not help us much, as we shall notice further on. Our analogy of the growth of the plant from the seed seems to be stretched too far when we carry it back into the inorganic sphere. We may agree with Wallace that no "verbal explanation or attempt at explanation—such as the statement that life is the result of the molecular forces of the protoplasm . . . can afford any mental satisfaction, or help us in any way to a solution of the mystery."† Perhaps Darwin was right when he suggested many years ago that the origin of life was as little explicable by science as the origin of matter.‡

The origin of consciousness is another point where a limit to evolution may be assigned. One difficulty which meets us at the outset is to determine the exact point in natural history at which consciousness emerges. From the biological side the tendency has been to describe the reactions to stimuli not only of plants, but of

\* *Op. cit.*, p. 410.

† *Darwinism*, p. 475.

‡ See *Life*, Vol. III, p. 18. Quoted, Ward, *op. cit.*, Vol. I, p. ix.

the lower animals, in such chemical terms as "heliotropism," etc., ignoring a possible conscious concomitant.\* On the other hand, psychical functions, as memory, choice, volition, have been ascribed to the protozoa; and protoplasm, or even inorganic atoms, have been endowed with consciousness.† We may begin either with chemical properties of molecules or with our own experience of voluntary action, and analogy will carry us a long distance up or down the stream, as the case may be.

Leaving this question of the time of appearance, there are but two theories of the origin of consciousness: it was specially created, or it was evolved from matter or energy. If consciousness be regarded as an invariable property of organized matter, then it was specially created with life, or together with life evolved from matter or energy. If it be regarded as a concomitant of all matter, as some hold, then again it was created with matter, or it existed forever, or indefinitely, no origin being assigned it. The only two theories of origin, we repeat, are special creation (unless it was created with "matter," when the creation would not be special) and evolution from something previously existing, which we may call energy or matter.‡

If we regard the appearance of consciousness as coincident with the appearance of life—a view now popular with psychologists—we merge the two problems into one, and the chasm between the unconscious-lifeless and the conscious-living is made wider and more difficult to cross. If we go further back and regard consciousness as an invariable concomitant of all matter, we must trace the passage from this diffused semi-consciousness, if we can conceive of such a thing, to the kind of unitary consciousness which we know of—a transition on the conscious side corresponding to the transition from the inorganic to the organic on the unconscious side; and, further, the problem of the ultimate origin of this primitive "consciousness" is only pushed further back. This method of tracing the development of consciousness back to the vanishing point—to a consciousness, as some one has suggested, "as much below that of the amœba, as the consciousness of the amœba is below that of Shakespeare"—while it may formally satisfy the

\* Loeb, *Physiology of the Brain*.

† See Baldwin, *Mental Development*, p. 273.

‡ Prof. Lloyd Morgan would add a third alternative, the evolution of consciousness from "infra-consciousness" (*Comparative Psychology*, p. 331). But this "infra-consciousness" must be either unconscious, and so incapable of producing consciousness, or else conscious, so leaving the problem of origin still open.

demand for continuity, does not really help us to understand the origin of either this primitive "consciousness" or that of consciousness as we know it.

When matter is ruled out of the universe there is, of course, no question of the evolution of mind from matter, although mind may be derived, as in the theory of Prof. Clifford, from a primitive "mind-stuff," which approaches in its conception infinitely near to that of matter, while it never theoretically reaches it. It has often been remarked that idealism and evolution make a strange partnership. Neo-Kantian idealism, as we have noticed, holds that mind is the presupposition of evolution, not its product. When a thorough-going idealism (phenomenalism) is sought to be combined with a thoroughgoing doctrine of evolution, the antagonism becomes acute. The cart must be put before the horse, for matter and motion, which have no existence except as modes of a developed consciousness, must be the causes from which this consciousness has developed. "Let idealism (in this sense) be true, and evolution is a dream!"

The attempt to show that consciousness is derived from unconscious energy or matter is now quite generally discredited. Psychologists generally are content to trace the origin of consciousness to some lower or primitive form, rather than essay the logical feat of deriving it from unconscious matter. Until it is shown more clearly how the integration of matter and distribution of motion can explain the rise of consciousness, the derivation of mind from matter must remain a logical *generatio æquivoca*.

We must notice briefly one more instance of the limitations of the evolution philosophy when applied to the problem of origins. There seem to be inevitable "hitches in the evolutionary deduction" when the attempt is made to show that the moral sentiments and convictions have been evolved out of non-moral elements, such as love of pleasure and fear of pain. Pleasure and pain, rewards and penalties, associated constantly with certain actions, may produce a strong tendency to the performance of some and the avoidance of others; and this tendency may be strengthened by habit and heredity, and, if useful for survival, be perpetuated by natural selection. It seems quite possible, then, for an outward, or objective, morality to be developed from pure motives of expediency. It is different, however, when we pass to the subjective side, the side of the ethical sentiments and ideals. How does it happen that the thought of natural consequences should pass over into reverence for a moral ideal; or that the language of

expediency should become pitched to the key of the categorical imperative? Between expediency and morality proper, or obligation, there is no thoroughfare: at least, no logical path leading from one to the other has, to our knowledge, been indicated. The *progress* of morality is really the evolutionist's proper field. Given morality to start with, evolution, by showing that moral conduct is life-preserving conduct, and so that nations and men who practice morality are better fitted to survive than nations and men who do not practice morality, may account for the growing efficiency of moral law, its wider application and finally its universality. It may account, in short, for the progress of morality, but not for its genesis. By ignoring this distinction, and by seeking to show that morality has been evolved out of that which, by hypothesis, contains none of it, the evolutionist, as Prof. Hyslop remarks, is led to assert the very "creation out of nothing" which he denies.\*

In all the attempts to pass from one order of existence to another apparently distinct, certain common features may be observed. Let us suppose that we wish to show how B has been evolved out of A. We may first unconsciously assimilate the two, and suggest that they are not so different after all. Mind may be evolved out of matter, because they have this at least in common, that we do know much about the ultimate constitution of either. So extension may pass over into thought. Or we may assume an intermediate term X between A and B, a sort of "double-faced entity," which may be thought of indifferently as of the nature of A or of B, and enable us to make an easy transition in thought from one to the other. Thirdly, we may insist that A will develop into B if you only allow it time enough, spreading the logical difficulty out so thin that at any given point it may be overlooked. Or, finally, we may in thought endow A with certain potencies or capacities, so that it becomes not A simply, but A *plus* the capacity to produce B. Thus the homogeneous is endowed with instability to account for the diversity of things, and the primitive star-dust endowed with "the promise and potency of all terrestrial life." As Dr. Fairbairn has remarked. "If we attempt to conceive what was before life and mind as the condition or cause or factor of their being, we must invest it with qualities which enable it to do its work. And what is this but turning it from dead matter into living spirit?"†

\**Elements of Ethics*, p. 332.

† *Philosophy of the Christian Religion*, p. 48.

The resort to these questionable logical methods is due, we believe, to an undue extension of the evolutionary theory. Within a given field, that of inorganic matter, or of organized matter, or of mental life, the evolutionist may be able to trace the modifications to which his original material has been subject, and to formulate the laws of its behavior; but in no case has he been able to account for the origin of his material or for the laws of its development. This is only saying that the limit of evolution here indicated is a limit of science, which deals, not with the original source nor with the end of things, but with the successive processes by which they have arrived at their present condition. Evolution is the name of the method which these processes have followed, not of a force creative or even directive. "Logic compels the evolutionist to assume a force that was not evolved, but which existed before evolution began."\*

If we interpret this Power behind evolution in the theistic sense, and believe that God is immanent in nature and in the life of man—that He is at once the source, the guide and the goal of evolution—we are not, indeed, as psychologists or biologists absolved from the task of tracing as far as possible the natural history of life and mind, but we may view that history from a standpoint from which both origin and progressive development become intelligible. The theistic postulate secures at once in the unity of an intelligent Purpose the continuity which, as we have suggested, naturalistic evolution has sought in vain. At the same time it explains the teleological or progressive character of cosmic development—the appearance, at various points, of wholly new forms and capacities of life.

If an evolution theory is to explain the whole history of the world and of man, it must be hospitable to the ideas both of continuity and of progress. The principle of continuity alone may account for change, but not for any real progress in the order of being. Progress may again be secured by abrupt transitions at the expense of continuity and of rational order. No scientific hypothesis, as we have seen, whether of the redistribution of matter and motion, or of the struggle for existence, or of natural selection, is equal to the task of carrying us all the way from homogeneous ether or "concentrating nebulae to the thoughts of poets." A theory of the universe which shall do justice to the conceptions both of continuity and progress can be framed only with the aid of the category of purpose. In no other way can the earlier and lower stages of

\* F. H. Headley, *Problems of Evolution*, p. 155.

existence be logically bound together with the later and higher except in the unity of a plan. The emergence of new powers and capacities demanded by progress is not unconnected with the preceding stage of development. It takes place only in the fullness of time, and when we pass from the inorganic to the organic, from the unconscious to the conscious, from the conscious to the moral, the earlier stage is both taken up by the later and transcended by it. But the earlier stage contains the "promise," rather than the "potency," of the later. Again, the notion of progress is inseparable from that of aim or purpose. In a world where atoms shift unceasingly, but without the guidance of intelligence or will, there could be no question of progress. Any mass of dots and lines would be as high in the scale as the arrangement of an alphabet in the form of the *Iliad*, for there would be no standard by which relative rank in the scale could be determined. Progress is essentially a teleological conception, and if the history of the world and of man presents any real progress, it can only be because it is in so far the expression of purpose.

The view of evolution which sees in it the gradual and progressive unfolding of a plan (admitting that it should be called evolution at all)\* has obvious advantages, both for science and theology. It views nature as an orderly system, and the natural forces with which science deals as definite and definitely limited in their operation, while monistic philosophy, on the other hand, in its dread of transcendence, is compelled to ascribe to the original constituents of nature—the bare abstract matter or mind-stuff—the predicate almost of creative power, in order to account for life, mind and history. Again, from the theological side, it avoids both the pantheistic and the deistic extremes. It does not merge the Infinite into the finite and identify God with nature, nor does it revert, as a consistent application of the "resident forces" theory seems to do, to the old deistic view, which evolution in its religious implications was supposed to have discredited. If creative power was exhausted in a single moment, or if its exercise at least was confined to a single period, and to the primitive atoms was transferred the task of bringing into being life, consciousness, freedom, love, we come very near to the idea of a Deity who is not immanent at all, but touches the world, to use Goethe's phrase, only with his finger-tips.

Turning now from these philosophical considerations, let us look

\* "Evolution, then, depends on increments of force *plus* continuity of plan" (Dr. A. H. Strong, *Christ in Creation*, p. 165).

briefly at the application of evolution in its proper sphere of biology, especially with reference to the question of the descent of man. If we accept the general theory of "descent with modification," it is difficult to see how man in his physical nature can be an exception to the general principle. The difference between his physical structure, with his erect posture, his greater weight of brain, etc., and that of the other primates is indeed striking, but does not exclude the hypothesis of common origin. In many of his mental characteristics again man shows a kinship with the brutes. It is when we look at man as a whole, however, and at his capacities as shown in his history, that the difficulty of a thoroughgoing theory of descent which refers his endowments to animal progenitors becomes apparent. Recent investigations in comparative psychology, while proceeding on the assumption of an unbroken line of development from the animal to the human consciousness, yet emphasize strongly the difference between them. It is the general conclusion that the earlier investigators, Darwin and Romanes, ascribed to animals a higher order of mentality than they are entitled to, and their conclusions are frequently quoted with amusement, not to say derision, by later writers. The problem of the transition from the animal to the human is much the same as that of other *lacuna*, or rather ascents, which we have seen in nature. Prof. Lloyd Morgan says: "If the dividing line between sense-experience and reflection is to be drawn between the lower animals and man, then we may say that there is a breach of continuity of development at this stage of evolution analogous to the breach of continuity between the inorganic and the organic phases of development. This is the view to which I myself incline. But we have seen that such breaches of continuity are natural incidents in the ascending curve of evolution. If, therefore, they do occur in mental evolution, *this does but bring this phase of development into line with the inorganic and the organic phase.*" Without doubt the hypothesis needed here is the one which can successfully heal the other breaches referred to. The breach is widened when we add to mental superiority the moral, æsthetic and spiritual capacities of man not possessed by brutes. Even sin, whether we call it "arrested development" with Emerson, or "refusal to evolve" with Dr. Lyman Abbott, implies a capacity of moral arrest or refusal not possessed by brutes. "We may perceive," says Wallace, "that the love of truth, the delight in beauty, the passion for justice and the thrill of exultation with which we hear of any act of courageous self-sacrifice, are the workings within us of a higher

nature which has not been developed by means of the struggle for material existence."\* When we compare man's higher capacities of thought, feeling and conduct with what we know of the brutes we have, perhaps in an intensified form, the same difficulty which we have met with before—something in a new form of existence not to be accounted for by anything in the lower form. Wallace's partition of man into a part due proximately to natural agency (natural selection) and a part due immediately to supernatural agency seems at first arbitrary. Yet we may find analogies for it. In living matter the laws of chemistry and physics are not suspended; and consciousness, when it appears, works in intimate connection with a nervous system. So it is perfectly possible that a lower or animal and a higher or spiritual part has been combined in a being as complex as man, and that, while the ultimate cause of both is the same, the spiritual element finds its proximate cause in the spiritual rather than in the natural world. Such a view of the coöperation of causes which may be distinguished as natural and spiritual—the view that God works both through nature and above nature—is familiar to theology, and has for centuries been applied by the "creationist" school to the analogous case of the birth of every babe. But we are told that such a blending of natural and supernatural in the origin of man is excluded by the facts of brain-physiology. Man, in his origin, cannot be a child of nature as to his body and a child of God in his spirit, because all his thoughts, even the highest, all his aspirations, his ideals of truth, of beauty and of goodness, have their exact physical concomitants in his brain, and these brain movements are determined by physical forces. The question of man's origin may be thus entangled with the psycho-physical question. If consciousness is a mere effect or "epiphenomenon," if it is a boat which can only float, oarless and rudderless, upon the stream of physical change, then for the origin of man we will look for the origin of his body. He may well be descended from the animal, for he possesses no spiritual nature, no power of control over action or even over thought, which would raise him above the brutes. The facts of man's history suggest that this view of man's body as a purely natural product, and of his mind as in a relation of one-sided dependence upon his body, cannot be correct. Though partly subject to his physical environment and dependent on it for life, man shows an incalculable power to change it and mold it to his own uses. He exterminates the larger animals who dispute

\**Darwinism*, p. 474.

with him the possession of the earth, or tames them to be his servants or his playthings. He covers the continents with the products of his civilization, and changes the face of the earth. He struggles against the lower tendencies of his nature, and aspires to the loftiest of all destinies—a life with the God whom he worships. If the mere variation in bodily structure was the cause of these new and wonderful capacities in man, surely a variation fraught with such potentialities must have been due to some factor transcending the animal world. Special creation, in fact, would be our only adequate theory of the change in bodily structure, if the bodily change carried the psychical differences along with it.

The intimate relations between mind and brain, whatever they may be exactly, clearly show an established, and doubtless also, in some sense, a pre-established, harmony between them. It seems reasonable then, to refer both body and soul either to the natural or to the supernatural mode of the divine working. When we reflect, however, that man's bodily nature and spiritual nature belong to different and apparently incommensurable spheres, we may not be unprepared to admit that a proximate and relative diversity of origin is possible. If "man still bears in his bodily frame the indelible stamp of his lowly origin,"\* he bears in the framework of his mind and moral nature the indelible stamp of his spiritual origin. The human body in its processes of growth, nutrition and decay is a part of nature. As regards the structure of his body, without respect to its origin, man is classed with the primates of the animal kingdom. In our physical life we are now under the restraints of natural law, and, as Lotze has said, we "should gain but little by rescuing the origin of our species from the grasp of this necessity."† But the most significant characteristics of man are those which differentiate him from the animal creation. The story of his complex social life and progress, his power to mold the forces of nature to his own uses, the reach of his thought, the products of his genius, his moral ideals and spiritual hopes—these are the marks of his sovereignty over nature, and are evidences not of his animal descent, but of his divine sonship.‡ If the unity of man, physical and psychical, is emphasized, and we are sharply confined to the alternatives—an origin of the whole man due to natural forces latent in the animal world, or the origin of the whole man through supernatural agency—we venture to say that, entirely apart from

\* *Descent of Man*, p. 619.

† *Microcosmos*, Vol. II, p. 136.

‡ Dr. Fairbairn dwells impressively on this contrast. *Op. cit.*, pp. 43-45.

exegetical reasons, the decision must be in favor of the latter theory.

While the doctrine of a common physical descent "from a few forms, or from one," is now the working hypothesis of most biologists, it must be remembered that there is by no means agreement as to the methods by which the change from one species to another has been accomplished. Much that Darwin wrote favored the so-called "happy-accident" theory, that all that was needed for the production of a new species were indiscriminate or "accidental" variations in the offspring, and that the natural selection of favorable variations, and their perpetuation and accumulation through heredity, would in the end lead to the formation of a new species. Chance or accident was thus given a leading rôle to play, but criticism from within the evolutionary school has pointed out that natural selection in this sense can hardly be the sufficient or even the leading cause of the origin of species. Huxley and Asa Gray suggested that the variation must be in a definite direction to lead to a new species. Darwin himself admitted that if a variation favorable to survival was to be perpetuated, and not "swamped" by the effects of intercrossing, the variation must occur simultaneously in a number of individuals of the given group.\* In his *Descent of Man* he emphasized the influence of "sexual selection"—a conscious factor—and admitted even that of the use and disuse of organs. Into the technical points in the discussion between the Neo-Darwinians, who exclude the influence of consciousness, and the Neo-Lamarckians, who make it the most prominent factor in the production of species,† we cannot now enter; but may notice that of late years, especially among American biologists, the pendulum has swung in the Lamarckian direction. To the modern Darwinian of the extreme type, who hold that all variation is chance variation, the origin of the highly complex instinctive movements of animals, such as the balancing of a frog upon a floating object, becomes a problem. On this point Prof. H. W. Conn has lately said: "It is frankly admitted that to put the burden of explaining instincts upon natural selection alone, unaided by intelligence, is to lay upon it a load too heavy for it to carry. This is admitted even by those who feel that they cannot use the inheritance of acquired character to help them out of the difficulty."‡

\* See "Darwinism in the Light of Modern Criticism," by Prof. T. H. Morgan, *Harper's Magazine*, February, 1903.

† An intermediate theory, called by Prof. Baldwin "organic selection," has lately found much favor. See his *Evolution and Development*, and the article in his *Dictionary of Philosophy*.

‡ *The Method of Evolution*, p. 275.

Prof. N. S. Shaler, in a recent article of much interest, intimates that the doctrine of natural selection has been unreasonably extended by Darwin's followers:

"In a conversation I had with him (Darwin) about two years before his death, he said that he was by no means sure as to the limits that would be, in time, assigned to the theory, and that the satisfaction he had personally won from it was the knowledge that it had made men think. . . . It is not yet satisfactorily proved [continues Prof. Shaler] that a single species of the two or three millions now inhabiting the earth have been established solely or mainly by the operation of natural selection."\*

On top of the critical attack upon the theory of natural selection have come the experiments and inferences of Prof. Hugo de Vries, of Amsterdam. Variability, De Vries holds, is not unlimited, and always returns to its starting-point. Thus the sugar beet in Germany, while it has been improved and its sugar-producing capacity increased by many years of artificial selection, yet without the utmost care will soon lose all that has been gained, and revert to the original type. Natural selection, he claims, has nothing to do with the *origin* of species, only with their survival in their rivalry with other species. New species always appear abruptly, from unknown causes, and show no tendency to revert to the original form. Of his observation of the appearance from seed of new forms of primroses he says: "Nothing indicates their appearance in advance, there is not even a hint of transition; once formed they are perfect, and retain, even after several generations, their original character. They originate with a shock or jump and then are constant."†

The acceptance of this theory of abrupt (*sprungweise*) transition from unknown causes, and its application to the origin of all organic forms, would evidently be serious both for Darwinism and Lamarckism. Darwin based his theory upon the change wrought through artificial selection; De Vries, on the contrary, argues negatively from the non-persistence of artificially selected variations, and then points positively to one case at least where a new species has arisen suddenly from an unknown cause, and without the aid of natural selection. As to how far the inferences of De Vries are legitimate, and as to how generally they will be adopted, we cannot undertake to say. His experiments, thus far, seem to furnish a slender basis on which to found a universal theory of descent. Darwin claimed—and we believe the claim is not disputed—that the popular acceptance of the theory of common descent was due

\* "Faith in Nature," *International Quarterly*, Dec.-Mar., 1902-1903.

† "Origin of Species," *Popular Science Mo.*, April, 1903. See also *Deutsche Revue*, December, 1902.

to his advocacy of natural selection as the method of transition from one species to another. Now suppose, as seems not unlikely, that the claim of natural selection to be the key which will unlock the mystery of the origin of species becomes generally discredited. Will the general theory, then, of the derivation of one species from another, and of all species from one, be able to maintain itself? Its obvious advantages as a unifying hypothesis are so great that it would seem rash to suggest that its abandonment is either probable or desirable, yet the discussions to which we have alluded show that its final form has by no means been fixed. "That it (the evolution theory) is settled once for all," says Prof. T. H. Morgan, in the article quoted, "no scientist who knows the history of scientific theory and its significance would wish to claim." What the final form will be only the future "evolution of evolution" can show.

It cannot be denied that evolution still proposes to the apologist and the exegete some questions whose answer as yet can only be provisional. Our thesis has simply been that recent discussions, both from the theological and the scientific side, have emphasized the "limits of evolution," and so tended to minimize its importance for theology. It has not given us the key with which the mysteries of existence can be unlocked. It has thrown no light upon the question of ultimate origin, whether of matter, of life, of mind, of conscience, of sin. It has left unsolved the fundamental metaphysical questions differently decided by atheism, pantheism, deism and theism. In its philosophical form it postulates an unbroken continuity, but, apart from theistic evolution, cannot reconcile this continuity with the progress it describes. In the citadel of its strength—the biological field—it renounces, in its most recent form, all attempt to explain the origin of species, that is, to assign a *vera causa* for their appearance.

Darwinism has made men think. It has given a remarkable stimulus to the investigation of nature, has quickened human thought even in fields where its application has not proved fruitful and has supplied new insights to theology. The outcome of forty years of scientific investigation and apologetic discussion, is, however, the growing conviction both among scientists and theologians that evolution as a scientific theory and theology have very little to do with each other, and that evolution neither increases materially the theologian's difficulties, nor helps him to solve them.