
A table of contents for *Bibliotheca Sacra* can be found here:

https://biblicalstudies.org.uk/articles_bib-sacra_01.php

ARTICLE VIII.

THE MISTAKES OF DARWIN AND HIS WOULD-BE FOLLOWERS.

[The writer of this article would by no means depreciate the service which Darwin has rendered in simplifying our conceptions of the movements of the forces involved in the origin of species, analogous to the work which Copernicus performed in simplifying our conceptions of the movements of the heavenly bodies. But this is so generally acknowledged that it would be needless here to dwell upon it. In evidence that the writer has an adequate understanding of the theory of Natural Selection, it is pertinent, however, to say that an article by him (published in the BIBLIOTHECA SACRA in 1876), stating the theory and the arguments supporting it, was declared, in a letter from Mr. Darwin, to be "powerfully written and most clear."—ED.]

DARWIN'S reasoning concerning the origin of species by means of natural selection is from beginning to end hypothetical. His effort is to establish a theory respecting a fact which is beyond the reach of observation. In this respect it is like the theory of gravitation. The soundness of his reasoning and the reasonableness of his conclusions are dependent upon the reality of the facts which he assumes to be proved and the correctness of the inferences which he draws from them. In the indiscriminate laudation of his work, natural to the hundredth anniversary of his birth, the public is in danger of being led into some serious errors. Darwin was by no means infallible. Even he himself did not have unwavering confidence in his own conclusions, especially respecting the question of design in nature. In a letter to one of his correspondents, after declaring his belief that the universe was "not the result of chance," he adds:—

"But then with me the horrid doubt always arises whether the convictions of man's mind, which has been developed from the mind of the lower animals, are of any value or at all trustworthy. Would any one trust in the convictions of a monkey's mind, if there are any convictions in such a mind?"[1]

We may well inquire whether a mind of such lowly origin as Darwin supposes his to be can be more confident in its conclusions concerning the origin of species than it is concerning the origin of the universe. It would seem to be as reasonable to remain an agnostic respecting the origin of species by natural selection as in respect to the existence of design in nature.

The exaggerated estimate which Darwin's eulogists assign to the lawful influence of his theory upon theological thought is largely due to ignorance of the theory itself and of the sandy foundation upon which much of his original structure is made to rest. Darwin made two great mistakes which vitiated his most fundamental assumptions.

1. *As to Geological Time.* The establishment of Darwin's theory as he originally proposed it involved the existence of the earth in substantially its present condition for an indefinite, not to say infinite, length of time. Not only did he adopt the extremest form of Lyell's uniformitarian theory concerning the action of geological forces, but he endeavored, at the outset, to support it by observations of his own. In the first edition of "Origin of Species" he essayed to make calculations concerning the length of time required for the erosion of the Wealden strata covering a considerable area near where he lived, south of London. To obtain his results he estimated the rate at which the sea was encroaching upon the present coast of England. Taking that as his divisor, and the estimated amount of the Wealden strata which had been eroded as his dividend, he ar-

[1] **Life and Letters of Charles Darwin, vol. i. p. 285.**

rived at the startling conclusion that 306,662,400 years must have been occupied in the process; and this, he adds, is "a mere trifle" of geological time.

But his attention was soon called to the fact that the action of ocean waves in eroding the edge of a continent was the smallest of all the agencies at work removing mountains and filling valleys. Facts were adduced showing that, through the influence of subaërial erosion, the rivers of the world are planing down the continents at the rate of about a foot in three thousand years upon the average. The Mississippi is transporting to the Gulf every 6,000 years what is equivalent to a foot in depth over the whole of its immense basin; the Hoang-ho a foot in 1,464 years; while the Po is reducing the level of its basin a foot in 729 years. If existing forces continue their operation at present rates, the continents, with the exception of a few mountain peaks, will be planed down to sea-level in a few million years.

Acknowledging the justice of these criticisms, Mr. Darwin honorably modified his conclusions, and, in all editions of his "Origin of Species" subsequent to the third, substituted paragraphs of a vague general nature concerning the length of geological time in place of the egregious misconceptions put forth in the first edition.

At a somewhat later period his distinguished son, Sir George H. Darwin, professor of mathematics in Cambridge, demonstrated, to the general satisfaction of physicists and astronomers, that the moon was thrown off from the earth not more than 100,000,000 years ago, and probably not more than 50,000,000 years ago. These calculations, and various others based upon strict mathematical data, enabled Lord Kelvin to demonstrate to his satisfaction, and to that of most others who have attended to the subject, that all the geological periods

must be brought within the limits of 24,000,000 years. A similar conclusion is reached by Alfred Russel Wallace from his study of the thickness of the geological strata and the rapidity with which the forces of denudation and deposition are operating. The difference between 306,662,400 years regarded as "a mere trifle" and 24,000,000 as constituting the whole sum is certainly very striking, and it is said that Darwin never fully recovered from the shock which was given him by his son's remarkable discoveries. For it necessitated a rapidity in the development of a species which, from his point of view, must be regarded as by leaps and bounds, and so would well accord with the theory of creation by divine intervention.

2. *As to the Minuteness of Beneficial Variations.* The unlimited length of geological time required by Darwin's original theory is closely bound up with his exaggerated view of the minuteness of the steps through which progress has been made. Apparently Darwin never had any adequate conception of the rapidity with which variations are taking place in individuals at the present time. The adjectives that he constantly uses are "slight," "small," "extremely gradual"; but he admits that "'specific changes may have been as abrupt and as great as any single variation which we meet with under nature, or even under domestication." Elsewhere he speaks of the "canon in natural history of '*Natura non facit saltum*'" as "somewhat exaggerated." Huxley here came to his relief by showing that "nature does make jumps now and then," and that a "recognition of the fact is of no small importance in disposing of many minor objections to the doctrine of transmutation." Nevertheless the impression which Darwin made by his emphasis of the extremely gradual rate of change has involved many of his followers, if not Darwin himself, in sundry absurd conclusions. Indeed, he says:—

"If it could be demonstrated that any complex organ existed, which could not possibly have been formed by numerous, successive, slight modifications, my theory would absolutely break down."[1]

But it is evident, as shown by Mivart, and others, that "minute incipient variations in any special direction" would necessarily be valueless, for they would not produce advantages of sufficient importance to permit natural selection to pick them up and preserve them.

One of the most convincing illustrations of the uselessness of slight variations appears in the advantage which many insects and other animals derive from mimicry in color or form or motion. For instance, the individuals of a certain species of Indian butterfly, when at rest upon a twig, so closely resemble the leaves that it is with great difficulty that even birds can distinguish them, and so they are protected from being seized for food. In the case of one of these butterflies (*Parallecta*), according to Weismann,—

"From the tail of the wing to the apex of the fore wings runs with a beautiful curvature a thick, doubly contoured dark line, accompanied by a brighter one, representing the midrib of the leaf. This line cuts the 'veins' and the 'cells' of the leaf in the most disregardful fashion, here in acute and here in obtuse angles, and in absolute independence of the regular system of divisions of the wing. . . . The midrib is composed of two pieces, of which the one belongs to the hind wing and the other to the fore wing, and the two fit each other exactly when the butterfly is in the attitude of repose, but not otherwise."[2]

The whole description is too long to insert here. But even that would bring to light only the beginning of complicated adaptations that must occur simultaneously and in completeness before any advantage could be derived from the imitation. A butterfly only partly like the leaf it imitates would

[1] Origin of Species, p. 146.
[2] Monist, January, 1896, pp. 259, 260.

have no protection from marauding birds. Like the ass with the lion's skin only partly covering him, the butterfly in the incipient stages of change would be easily detected. To suppose, therefore, that the advantages of mimicry could be obtained by a slow process of what Darwin would call chance variation is absurd in the highest degree. To avoid the absurdity, Weismann goes back to the ultimate assumption of

"a teleological principle which produces adaptive characters and which must have deposited the directive principle in the very first germ of terrestrial organisms. . . . The assumption of preëstablished harmony between the evolution of the ancestral line of the tree with its prefigurative leaf, and that of the butterfly with its imitating wing, [he affirms] is absolutely necessary here." [1]

A similar absurdity in supposing the acquisition of advantageous qualities by chance variations is shown in the pertinent illustration adduced by Herbert Spencer from the anatomy of the cat. To give the cat power of leaping to any advantageous height, there must be a simultaneous variation in all the bones, sinews, and muscles of the hinder extremities; and, at the same time, to save the cat from disaster when it descends from an elevation, there must be variation of a totally different character in all the bones and tendons and muscles of the fore limbs. To learn the character of these changes, one has but to "contrast the markedly bent hind limbs of a cat with its almost straight fore limbs, or contrast the silence of the upward spring on to the table with the thud which the fore paws make as it jumps off the table." So numerous are the simultaneous changes necessary to secure any advantage, that the probabilities against their arising fortuitously run up into billions, if not into infinity; so that they are outside of any rational recognition.

[1] Monist, *l.c.*, p. 261.

It is no wonder, therefore, that when Darwin, in 1863, suggested to Asa Gray that the nice coadaptations existing in the orchids in their relation to insect fertilization could be produced by "any number of chance" variations, Gray should write, "When you bring me up to this point I feel the cold chill."[1] The fact is that Darwin made a fatal mistake in rejecting, to the extent to which he did, the existence of design in nature, and in assuming that, while the human mind, notwithstanding its animal origin, could render valid judgment concerning the origin of species, it could not render equally valid judgment concerning the existence of design and of a personal Creator. Under criticism he was compelled to admit that "the tendency to vary in the same manner has often been so strong that all the individuals of the same species have been similarly modified without the aid of any form of selection."[2] Yet he would not admit, with Asa Gray, Alfred Russel Wallace, and even Mr. Huxley, that this must be the result of a ruling design in the adjustment of the original elements. But only by admitting this could he save his theory.

But, great as were some of the mistakes of Darwin, they are as nothing to the mistakes that have been made by many of his followers in assuming that his theory is one of universal application to all sorts of subjects. Darwin did not set out to prove a theory of thoroughgoing evolution. His views of its great apostle, Herbert Spencer, were frankly expressed in a letter to Sir Joseph Hooker in 1866, in which he says:—

"I feel rather mean when I read him [Spencer]: I could bear, and rather enjoy feeling that he was twice as ingenious and clever as myself, but when I feel that he is about a dozen times my superior, even in the master art of wriggling, I feel aggrieved. If

[1] Letters of Asa Gray, vol. ii. p. 508.
[2] Origin of Species (6th Ed.), p. 72.

he had trained himself to observe more, even if at the expense, by the law of balancement, of some loss of thinking power, he would have been a wonderful man."[1]

The prevailing application of Spencer's thoroughgoing theory of evolution to sociological, historical, and theological questions is a mistake of the highest order, fraught with incalculable mischief.

Man is not an automaton. He does not live by bread alone. Whatever his connection with the lower animals may have been, his mental and spiritual powers are indefinitely superior to any which they possess. The lofty flights of inductive reasoning by which Darwin reached his conclusions reveal a mental capacity in man which warrants his drawing, upon proper study, trustworthy conclusions also in other realms of speculation. But in these realms Darwin spoke with becoming modesty. If all Darwin's followers had the frankness to admit, with him, that their "opinion [upon theological questions] is not worth more than that of any other man who has thought on such subjects, and it would be folly" to express it, they would render a great service to the general public.

With respect to the theological bearings of the doctrine of natural selection he writes:—

"I am bewildered. . . . . I feel most deeply that the whole subject is too profound for the human intellect. A dog might as well speculate on the mind of Newton. Let each man hope and believe what he can. Certainly I agree with you [Asa Gray] that my views are not at all necessarily atheistical."[2]

And again he says:—

"I feel in some degree unwilling to express myself publicly on religious subjects, as I do not feel that I have thought deeply enough to justify any publicity."

[1] Life and Letters, vol. ii. p. 239.
[2] *Ibid.*, p. 105.

"Now I have never systematically thought much on religion in relation to science, or on morals in relation to society, and without steadily keeping my mind on such subjects for a *long* period, I am really incapable of writing anything worth sending to the *Index* [a paper published by Dr. F. E. Abbott]."[1]

Again, in 1879, writing to a German youth, Darwin says:—

"I am much engaged, an old man, and out of health, and I cannot spare time to answer your questions fully,—nor indeed can they be answered. Science has nothing to do with Christ, except in so far as the habit of scientific research makes a man cautious in admitting evidence."[2]

Again, referring to his feelings in earlier days, whilst standing in the midst of the grandeur of a Brazilian forest, he says:—

". . . . I well remember my conviction [at that time] that there is more in man than the mere breath of his body. But now the grandest scenes would not cause any such convictions and feelings to rise in my mind. It may be truly said that I am like a man who has become colour-blind, and the universal belief by men of the existence of redness makes my present loss of perception of not the least value as evidence."[3]

Elsewhere Darwin speaks of having lost his interest in poetry and music, even to the extent that the reading of Shakespeare nauseated him, and he regrets that he had not continued to give habitual attention to other things than the mere drawing of inferences from biological facts.

Many who assume to be followers of Darwin, however, have none of the modesty of their leader, but ride their hobby rough-shod through every department of human thought, and boldly enter "where angels fear to tread."

But the elements of human history obey higher laws than those which govern the combination of molecules in protoplasm. At some point in the ongoings of nature, God has breathed upon protoplasm and stamped upon it his own image,

[1] Life and Letters, vol. i. pp. 275, 276. [2] *Ibid.*, p. 277.
[3] *Ibid.*, p. 281.

which is different from and higher than any qualities possessed by the lower orders of the animal creation. Sir Isaac Newton, with his marvelous power of inductive reasoning, with his knowledge of the axioms of science and of the moral law, all revealing the image of God which was bestowed upon our nature, was more capable of reading the thoughts of his Creator than an ape would be of understanding the "Principia." We can indeed dimly trace God's thoughts as they are embodied in the material universe. An ape could get nothing from the "Principia." The difference between nothing and something is infinite.

No: Darwinianism is not applicable to human history; for man has a moral freedom and a mental capacity which are not possessed by the lower orders of organic life. Man is not a machine. He has the power of choice. He is controlled not by material forces which *compel* action but by motives which *persuade* to action. There is a vast difference between a *moral* motive and a *loco*motive. Social science cannot be built up in independence of these facts. Ideal elements enter into society and profoundly affect its whole organization. Individual leaders and reformers have an influence which is out of all proportion to the physical elements which they directly control. Thus Moses and the prophets have made the Jews a peculiar people, able to resist to this day the influences of every diverse form of civilization. Confucius by a few words of wisdom has directed the course of Chinese history for thousands of years, and Buddha by his example and philosophy has given character to the history of all Eastern Asia. The history of Europe was transformed by Luther and Calvin. The future of all Christian nations is closely bound up with the religious ideas cherished by the people.

The dependence of human history upon the influence of great leaders whom Providence has provided at the appropriate time is too evident to need more than a simple statement. Without a Mohammed there would have been no Mohammedanism. Without a Washington there would have been no successful revolution of the American colonies. Without a Lincoln the American Union would have been dissolved. Abraham Lincoln was not an accident. The mother that rocked his cradle in the log cabin of Kentucky was guarding the saviour of his country. The countless influences which shaped his early career and by gentle persuasion planted in his mind his hatred of slavery and all those other moral qualities that commended him to the hearts of the common people, together with the influences which, also by persuasion, led to his remarkable mental development and to the preservation of his physical vigor, all of which were necessary to success, were not accidental. There *is* a divinity that shapes our lives, rough hew them how we will. That profound consciousness which fell upon Lincoln when he assumed the duties of the high office to which the people had elected him, that he was chosen by God as well as by the people was not a hallucination, but the revelation of a fact which was verified by all subsequent history. It was not a case of *natural* selection, but of *divine* selection. And so throughout the whole range of human history a divine hand appears in no unmistakable manner.

No doctrine of natural selection which rules out the hand of God in directing the variability of species and in adjusting it to the complex changing and mechanical conditions which select and preserve the ascending series leading from amoeba to man can be entertained by any well-balanced mind. Much less can the God of the Bible be eliminated from human history. No doctrine of theology is affected to any appreciable extent

by the indefinite theory of the origin of species through natural selection. On the other hand, the doctrines of original sin, of foreordination, of future punishment, of the solidarity of the human race, and of the reasonableness of a historical religion which recognizes these facts, are strongly supported by numerous new analogies which are made to appear between religion, natural and revealed, and the constitution and course of nature. The world waits for another Joseph Butler adequately to treat this most suggestive and instructive theme.