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Light :

EDITED BY 'M. A. (OXON.)'

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Business communications should in all cases be addressed to Mr. B. D. Godfrey, 2, Duke-street, Adelphi W.C., and not to the Editor.

DARWINISM.\*

No. I.

Men who are not more than fifty years old may well pass in review with something very like astonishment the progress of the "Darwinism" which Mr. Russel Wallace has treated from his own point of view in this volume. Denounced from the pulpit, scouted by the professor, and jeered at by the common herd of humanity, its propounder was at last buried in Westminster Abbey with all the solemnity which could be bestowed by the religion it was asserted he had tried to overthrow.

It certainly was a serious blow to a British mortal to be told that he was descended from some form of anthropoid ape. It was bad enough for the world in general; it might, perhaps, be to some extent true for the bushmen, or the Australian black-fellow, but for the inhabitant of this land of the Bible it was impossible, blasphemous, and revolting. If anybody had been made in the image of God, it certainly was the Englishman; it never struck that Englishman that in reality the creation had been the other way round, and that the Englishman had made God in his own image.

But all this is changed; few will now be found to challenge Darwinism on these grounds; we have lived rather fast during the last thirty years, and the question now is, to what extent must the theories of Darwin be accepted or modified in view of the extended knowledge of life which we now possess? To this question Mr. Wallace gives a profoundly able answer. For Mr. Wallace, "Natural Selection" is of "overwhelming importance" in the production of new species.

But there has arisen in connection with the Darwinian theory of evolution a grave difficulty. Does this principle of evolution apply to what is generally known as the spiritual part of man? And here one comes across a serious stumbling-block. Try as they will—and the trial has been made by men of profound scientific insight and perfect integrity—there comes a gap which biologists cannot bridge over by any part of the evolutionary method, however much that method may be forced to cover the facts. Mr. Wallace, however, faces the question boldly; he says:—

"Although, perhaps, nowhere distinctly formulated, his" (Darwin's) "whole argument tends to the conclusion that man's entire nature and all his faculties, whether moral, intellectual, or spiritual, have been derived from their rudiments in the lower animals, in the same manner and by the action of the same general laws as his physical structure has been derived.

\* *Darwinism: An Exposition of the Theory of Natural Selection, with Some of its Applications.* By ALFRED RUSSEL WALLACE. (London: Macmillans, 1889.)

As this conclusion appears to me not to be supported by adequate evidence, and to be directly opposed to many well-ascertained facts, I propose to devote a brief space to its discussion."

The argument from "continuity" is that first touched by Mr. Wallace, and here, at once, an error is pointed out which, though of the utmost gravity, is not always noted. Continuity and natural selection are not the same things. Says Mr. Wallace:—

"The point to which I wish specially to call attention is, that to prove continuity and the progressive development of the intellectual and moral faculties from animals to man, is not the same as proving that those faculties have been developed by natural selection, and this last is what Mr. Darwin has hardly attempted, although to support his theory it was absolutely essential to prove it."

The modern scientific mind has a wholesome and well-founded objection to "catastrophe," and as Mr. Huxley pointed out a year or two back in the *Nineteenth Century*, when attacking Canon Liddon, "catastrophe" is only a sequence in the chain of cause and effect, where we do not happen to know the cause. But though "catastrophe" is a word of evil import, we may use it for the moment to signify any event which occurs, but cannot be explained by those sequences of cause and effect which we call "natural laws." If, then, anywhere in the biological history of man, any event has occurred which is "catastrophic" in its nature, and cannot be explained by the Darwinian law of natural selection, we must look for the solution in some other set of sequences, in some other, though perhaps unrecognised and unknown, natural law.

To prove his position Mr. Wallace takes three such "catastrophic" cases; the origin of the mathematical faculty; the origin of the musical faculty; and the origin of the artistic faculty.

First, as to the mathematical faculty. There seems to be no doubt that among savage races the power of counting is very limited, even though it be true that the Tongans can count up to 100,000. "But," Mr. Wallace observes:—

"Mere counting does not imply either the possession or the use of anything that can be really called the mathematical faculty, the existence of which, in any broad sense, has only been possible since the introduction of the decimal notation. The Greeks, the Romans, the Egyptians, the Jews, and the Chinese had all such cumbrous systems, that anything like a science of arithmetic, beyond very simple operations, was impossible; and the Roman system, by which the year 1888 would be written MDCCCLXXXVIII, was in common use in Europe down to the fourteenth or fifteenth century, and even much later in some places."

After referring to the introduction of Algebra, Mr. Wallace goes on:—

"It is, however, during the last three centuries only that the civilised world appears to have become conscious of the possession of a marvellous faculty which . . . has developed to an extent, the full grandeur of which can be appreciated only by those who have devoted some time (even if unsuccessfully) to the study."

Now, says Mr. Wallace, the savage either did or did not possess this faculty in a rudimentary state; if he did, then,

"We have to ask by what means has this faculty been so rapidly developed in all civilised races, many of which a few centuries back were, in this respect, almost savages themselves; while in the latter case the difficulty is still greater, for we have to assume the existence of a faculty which had never been used either by the supposed possessors of it or by their ancestors."

Mr. Wallace takes the least difficult of these suppositions, namely, that the savage had the rudiments of the faculty. How then, he asks, has it become developed so as to produce a Newton, a La Place, a Gauss, or a Cayley? Admitting all gradations between the two extremes, the savage and Newton, what motive power caused its development? Now the process of natural selection and of the survival of the fittest depends entirely on struggle of some kind, and Mr. Wallace shows how in "the struggles of

savage man with the elements, and with wild beasts, or of tribe with tribe" this faculty could have had no influence, and he points out with great emphasis that the Hindoos, the Arabs, the Greeks, and the Romans, all of whom had some amount of mathematical talent, have been supplanted by the Celts, the Teutons, and the Slavs, the fittest for survival—these last-mentioned races not having depended for "their steadily growing success during past centuries either on the possession of any exceptionally mathematical faculty or on its exercise." Mr. Wallace concludes then that we must look elsewhere for the development of the mathematical faculty.

Mr. Wallace again looks at this same faculty from another point of view. He shows that—

"The characters developed by means of natural selection will be present in all the individuals of a species, and, though varying, will not vary widely from a common standard . . . . In accordance with this law, we find that all those characters which were certainly essential to him during his early stages of development, exist in all savages with some approach to equality. In the speed of running, in bodily strength, in skill with weapons, in acuteness of vision, or in power of following, all are fairly proficient . . . . So, every wren makes a fairly good nest, &c.

"Now as to this mathematical faculty, probably fewer than one in a hundred really possess it, the great bulk of the population having no natural ability for the study, or feeling the slightest interest in it. And if we attempt to measure the amount of variation in the faculty itself between a first-class mathematician and the ordinary run of people, who find any kind of calculation confusing and altogether devoid of interest, it is probable that the former could not be estimated at less than a hundred times the latter, and perhaps a thousand times would more nearly measure the difference between them."

This curiously sporadic character is shown with equal clearness to be a property of both the artistic and musical faculties. The suggestiveness of the observations is evident, but the admirable way in which Mr. Wallace comes to his conclusion must be reserved for another article.

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 DARWINISM.\*

## No. II.

In the former article on "Darwinism" it was stated that Mr. Wallace had come to the conclusion that the theory of natural selection could in no wise explain the existence of the mathematical, the artistic, or the musical faculties. We will give Mr. Wallace's own words:—

"The facts now set forth prove the existence of a number of mental faculties which either do not exist at all, or exist in a very rudimentary condition in savages, but appear almost suddenly and in perfect development in the higher civilised races. These same faculties are further characterised by their sporadic character, being well developed only in a very small proportion of the community, and by the enormous amount of variation in their development, the higher manifestations of them being many times—perhaps a hundred or a thousand times—stronger than the lower. Each of these characteristics is totally inconsistent with any action of the law of natural selection in the production of the faculties referred to, and the facts taken in their entirety, compel us to recognise some origin for them wholly distinct from that which has served to account for the animal characteristics—whether bodily or mental—of man.

"The special faculties we have been discussing clearly point to the existence in man of something which he has not derived from his animal progenitors—something which we may best refer to as being of a spiritual essence or nature, capable of progressive development under favourable conditions."

Against the argument that "the admitted continuity of man's progress from the brute does not admit of the introduction of new causes, and that we have no evidence of the sudden change of nature which such introduction would bring about," Mr. Wallace points out that "there are at least three stages in the development of the organic world when some new cause or power must necessarily have come into action." The first stage is the change from inorganic to organic, that is, the introduction of *vitality*; the second is the introduction of sensation or consciousness; and the third stage is manifested by "the existence in man of a number of his most characteristic and noblest faculties, those which raise him furthest above the brutes and open up possibilities of almost indefinite advancement." These three stages of progress point to a world of spirit, to which the world of matter is subordinate.

"Causes of a higher order" is the expression used by Mr. Wallace in reference to these changes in the march of continuity, and the expression is admirably chosen. To say that "these causes of a higher order" are not existent because they are not understood is nothing to the point, but that is the whole case of the materialist. Whether Mr. Wallace is right in referring to "these causes of a higher order," as causes existent in a *spiritual* world, such things as gravitation, cohesion, chemical force, radiant force, and electricity, may be matter of question, but the question will probably be answered in the affirmative when the "causes of a higher order" are understood to include causes of different ranks of orders, of which ranks of orders in one direction the causes may be broadly termed spiritual, in the opposite direction material. That such sporadic appearances of higher faculties as have been mentioned, and such changes in the essential nature of terrestrial existence as the introduction of *vitality*, cannot be accounted for by the principle of natural selection, Mr. Wallace has admirably shown, and this seems to cover a great part of what is necessary for the proof of the existence of agencies which are not material. In this direction Mr. Wallace has done a service which cannot easily be over-estimated.

But once having established the necessary condition of a spiritual life, once having shown that this material life is only an episode in that other life, how changed is the whole aspect of existence. Men who see this will be

"Relieved from the crushing mental burthen imposed upon those who, maintaining that we, in common with the rest of nature, are but products of the blind eternal forces of the universe, and believing also that the time must come when the sun will lose his heat and all life on the earth necessarily cease—have to contemplate a not very distant future in which all this glorious earth—which for untold millions of years has been slowly developing forms of life and beauty, to culminate at last in man—shall be as if it had never existed; who are compelled to suppose that all the slow growths of our race struggling towards a higher life, all the agony of martyrs, all the groans of victims, all the evil and misery and undeserved suffering of the ages, all the struggles for freedom, all the efforts towards justice, all the aspirations for virtue and the well-being of humanity shall absolutely vanish, and, 'like the baseless fabric of a vision, leave not a wrack behind.'"

This is not mere rhetoric; Mr. Wallace contends for a spiritual "Darwinism," where development is again won by struggle, where "evil" is one of the most efficient means of that development, just as the physical "evil" of starvation was one of the most potent factors in the advancement of the animal man.

Surely, once again, we are here in presence of the meaning of man's existence on this earth, man, that is the spiritual and real man; we see that life here is for the advantage of the man if he will submit to the education. But, in conclusion, let us quote Mr. Wallace once more:—

"We know that the noblest faculties of man are strengthened and perfected by struggle and effort; it is by unceasing warfare against physical evils, and in the midst of difficulty and danger, that energy, courage, self-reliance, and industry have become the common qualities of the northern races; it is by the battle with moral evil in all its hydra-headed forms, that the still nobler qualities of justice and mercy and humanity and self-sacrifice have been steadily increasing in the world. Beings thus trained and strengthened by their surroundings, and possessing latent faculties capable of such noble development, are surely destined for a higher and more permanent existence."

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\* *Darwinism: An Exposition of the Theory of Natural Selection, with Some of its Applications.* By ALFRED RUSSEL WALLACE. (London: Macmillans, 1889.)