

## A. R. WALLACE'S "DARWINISM."

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PHRENOLOGISTS, who flatter themselves that their doctrine is making progress, must look with regret at Mr. A. R. Wallace's latest work—"Darwinism." The book, on the whole, appeals to naturalists only, with the exception of the last chapter, which should be read by every psychologist. I intend to give an analysis of this chapter, which the author describes as "A new argument as to the nature and origin of the moral and intellectual faculties of man."

He argues that, "Because man's physical structure has been developed from an animal form by natural selection, it does not necessarily follow that his mental nature, even though developed *pari passu* with it, has been developed by the same causes only." He fully accepts Darwin's conclusions as to the essential identity of man's bodily structure with that of the higher mammalia, and his descent from some ancestral form common to man and the anthropoid apes. The laws of variation and natural selection, acting through the struggle for existence, and the continual need of more perfect adaptation to the physical and biological environments, may have brought about ; first, that perfection of bodily structure in which he is so far above all other animals, and in co-ordination with it, the larger and more developed brain ; but, it is not therefore to be assumed against independent evidence, that the later stages of an apparently continuous development are necessarily due to the same causes only as the earlier stages. Certain definite portions of it could not have been developed by variation and natural selection alone, and therefore some other influence, law or agency, is required to account for them. If this can be clearly shown for any one or more of the special faculties of intellectual man, we shall be justified in assuming that the same unknown cause or power may have had a much wider influence, and may have profoundly influenced the whole course of his development. Of these "specially developed faculties of civilised man" (p. 470), he selects three for illustration—the mathematical, the musical, and the artistic.

What may be termed the mathematical faculty, is either absent, or if present, quite unexercised in all the lower races of man. From the fact that so many of the existing savage races can only count to four or five, Sir John Lubbock thinks it improbable that our earliest ancestors could have counted as high as ten. But, may I ask Mr. Wallace, is it a fact that some savage races can only count to five? Does such a savage mother not know whether she has six or seven children? That

there is no word for five is not sufficient evidence that they cannot count to five. The savage says 'four and one' for five, just as we say ten and one for eleven, and eight and ten for eighteen, as everyone knows who has studied the origin of our numerals.

Mr. Wallace asks, by what means has this faculty been so rapidly developed in all civilised races, and how has this rudimentary faculty become rapidly developed into that of a Newton, a Laplace, a Gauss, or a Cayley ? We will admit that there is every possible gradation between these extremes, and that there has been perfect continuity in the development of the faculty, but, we ask, what motive power caused its development ? We ask, what relation the successive stages of improvement of the mathematical faculty had to the life and death of its possessor, to the struggles of tribe with tribe or nation with nation, or to the ultimate survival of one race and extinction of another ? If it cannot possibly have had any such effects, then it cannot have been produced by natural selection.

We conclude then (p. 467), that the present gigantic development of the mathematical faculty is wholly unexplained by the theory of natural selection, and must be due to some altogether distinct cause.

Of the musical and artistic faculties, he says, that these distinctively human faculties follow very closely the lines of the mathematical faculty in their progressive development, and serve to enforce the same argument. As with the mathematical so with the musical faculty : it is impossible to trace any connection between its possession and survival in the struggle for existence. It seems to have arisen as a result of social and intellectual advancement, not as a cause.

The artistic faculty has run a somewhat different though analogous course. Most savages exhibit some rudiments of it, but the glorious arts of Greece did not prevent the nation from falling under the sway of the less advanced Roman.

Besides, there is an "independent proof that the mathematical, musical, and artistic faculties have not been developed under the law of natural selection." These specially developed faculties of civilised man, which we have been considering, exist only in a small proportion of individuals ; while the difference of capacity between these favoured individuals and the mass of mankind is enormous. According to the estimate of two mathematical masters in a public school, probably fewer than one in a hundred boys really possess the mathematical faculty, and the artistic faculty appears to agree pretty closely with the mathematical in its rate of occurrence ; while, as to

the musical faculty, though undoubtedly in its lower form less uncommon than either of the preceding, a music master in a large school states that only about one per cent. have real or decided musical talent—corresponding curiously with the estimate of the mathematician. It appears then that, both on account of the limited number of persons gifted with the mathematical, the artistic, and the musical faculties, as well as from the enormous variations in its development, these mental powers differ widely from those which are essential to man and are for the most part common to him and the lower animals, and that they could not therefore possibly have been developed in him by means of the law of natural selection.

And, besides the three specially referred to, there are others which evidently belong to the same class, such as the metaphysical faculty, which enables us to form abstract conceptions of a kind the most remote from all practical application ; to discuss the ultimate causes of things, the nature and qualities of matter, motion and force, of space and time, of cause and effect, of will and conscience. Speculations on these abstract and difficult questions are impossible to savages, who seem to have no mental faculty to grasp the essential ideas or conceptions ; yet, whenever any race attains to civilisation and comprises a body of people who, whether as priests or philosophers, are relieved from the necessity of labour, the metaphysical faculty appears to spring suddenly into existence.

The interpretation of the facts now set forth is, that they 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. Each of these characteristics is totally inconsistent with any of the laws of natural selection, 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 clearly point to the existence in man of something which he has not derived from his animal progenitors, of a spiritual essence or nature which we may best refer to as being capable of progressive development under favourable circumstances. On the hypothesis of this spiritual nature superadded to the animal nature of man, we are able to understand much that is otherwise mysterious or unintelligible in regard to him : The devotion of the soldier ; the unselfishness of the philanthropist ; the delight in beauty ; the thrill of exultation with which we hear of any act of courageous self-sacrifice, &c. These are the workings within us of a higher

nature, which has not been developed by means of the struggle for material existence.

It will no doubt be urged that the continuity of man's progress does not admit of the introduction of new causes, but the fallacy as to new causes involving any breach of continuity, or any sudden or abrupt change in the effects has already been shown, as in the instance of glaciation.

In summing up, the author bases his arguments upon three stages in the development of the organic world, when some new cause or power must have necessarily come into action. Hitherto he has only argued upon the one stage of the more specialised mental faculties of man ; it is therefore necessary to recapitulate the two preceding lower stages.

The first stage is the change from inorganic to organic, when the earliest vegetable cell, or the living protoplasm out of which it arose, first appeared.

The next stage is the introduction of sensation or consciousness, the fundamental distinction between the animal and vegetable kingdom.

The third stage is "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 distinct stages of progress point clearly to an unseen universe, to a world of spirit, to which the world of matter is altogether subordinate. To this spiritual world we may refer the marvellously complex forces, which we know as gravitation, cohesion, chemical force, radiant force, and electricity, without which the material universe could not exist for a moment in its present form, and perhaps not at all.

In conclusion, those who admit the interpretation of the evidence now adduced, will be able to accept the spiritual nature of man as not in any way inconsistent with the theory of evolution, but as dependent on those fundamental laws and causes which furnish the very materials for evolution to work with.

We, who accept the existence of a spiritual world, can look upon the universe as a grand consistent whole, adapted in all its parts to the development of spiritual beings, capable of indefinite life and perfectibility.

To us, the whole purpose, the only *raison d'être* of the world, was the development of the human spirit in association with the human body. 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.

No doubt, those who still hold the orthodox views of the soul and of immortality, will be delighted with this chapter of Mr. Wallace's "Darwinism," but those who have been studying psychology from a physiological point of view, will deplore the error into which he has fallen. Had this wonderfully observant and acute scientific man—as Mr. Wallace undoubtedly is—had even a rudimentary knowledge of the principles of phrenology—or physiological psychology—he could not have written such nonsense as this: that the possession of the musical faculty and of the faculty for numbers distinguished man from animals, and imparted to man a distinction and an impetus sufficient to separate him from all his fellow partakers of animate life, and to lift him out of his and then known physical surroundings into an unknown and spiritual world. The musical faculty is dependent in the first instance on the appreciation of sound and the appreciation of time; and these two elements are certainly to be found in those animals, particularly birds, which can be trained to learn tunes. I have seen animals which can count; and, while I admit that in civilised man these faculties have reached a high stage of development, I assert also, that both in savages and animals their rudiments are to be found, and that the possession of these faculties is no distinction whatever between man and animals, between the organic and the spiritual world.

No wonder, if our most distinguished scientists continue to speculate regarding the manifestations of mind; if the futility of metaphysics is not demonstrated even at the close of the nineteenth century; phrenology can neither be understood nor appreciated.

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