

NATURAL SELECTION AND THE SPIRITUAL WORLD.

"DARWINISM," the title of the delightful book which Mr. Alfred Russel Wallace published last year, is a splendid proof of an absence of jealousy not too common, even in scientific minds; but it is also an express declaration of what Mr. Wallace understands by the evolution theory. Mr. Wallace is more "Darwinian" than Darwin himself. Darwin put forward "natural selection" as only one among the factors of organic evolution: he did not attempt to set aside the old Lamarckian theory of the hereditary transmission of the effects of use and disuse, although natural selection was his own discovery—a discovery made independently by himself, and by Mr. Wallace. It has been lately said by Professor Patrick Geddes (*Evolution of Sex*, p. 304), that there is at the present time "a growing tendency to limit the importance of natural selection." This statement will doubtless cause great satisfaction to the Duke of Argyll; but I do not know what proof can be given for its truth, except the opinion of Professor Geddes himself, of Mr. Herbert Spencer, and of a few American biologists; according to biologists such as Mr. Russel Wallace, Professor Weismann and Mr. E. B. Poulton, the tendency is now all the other way. And this is admitted by Mr. Grant Allen, in spite of his admiration for Spencerian psychology, in a very remarkable review of Professor Weismann's papers *On Heredity*, in the *Academy* of February 1. In any case, there is this difference between natural selection and the other alleged factors of organic evolution, that they are speculations, more or less metaphysical in character, whereas natural selection is a fact; it is a cause actually at work in nature, and the only question is, whether it is able or not to explain all the phenomena. On the other hand, Mr. Spencer's "differentiation and integration," Professor Geddes's see-saw of "anabolism and katabolism," Mr. Cope's "bathmism" or growth-force, which acts by means of retardation and acceleration (and which Mr. Darwin found himself quite unable to understand), remind us of the theories about Nature that were thrown out by the older Greek philosophers—above all, of the "love and strife" in the poetic system of Empedocles. Such general formulæ may help to make the universe more intelligible to us, and may possibly suggest profitable lines of investigation to the inquirer, who is otherwise too

bewildered by details ; but they stand on a perfectly different level from the everywhere present fact of the struggle for existence, in which those organisms that happen to possess useful variations have a better chance of succeeding and transmitting these useful qualities to offspring than those less favourably equipped. The hereditary transmission of the effects of use and disuse has been very readily accepted by the popular imagination, and has indeed bulked most largely in current versions of evolution, because it has fitted in perfectly well with traditional beliefs about hereditary curses, and with the theological doctrine of "original sin." "The fathers have eaten sour grapes, and the children's teeth are set on edge." People who make stale jokes about the ancestral ape wearing off his tail by sedentary habits imagine that they are putting Darwin's theory in a comic light, but have probably never taken the trouble to understand natural selection. The facts which, it has been supposed, can only be explained by the transmission of the effects of use and disuse, turn out, however, either not to be facts at all—a misfortune that often happens to "facts"—or to admit of a perfectly satisfactory explanation by the *cessation* of natural selection. Thus the various contrivances of civilisation, including spectacles, make defective vision less injurious to human beings nowadays than it was in the hunting stage ; and thus the prevalence of shortsightedness, so far as it cannot be accounted for by what takes place in the individual life-time, does not compel us to suppose that it has been produced by the hard study of past generations "poring over miserable books." At least the cautious verdict with regard to the transmission of the effects of use and disuse appears to be "not proven." Mr. Wallace even rejects Darwin's theory of sexual selection, except in so far as it consists merely in the struggle between males and can therefore be resolved into one aspect of natural selection.¹ So that no one could apply the theory of natural selection in a more complete and thorough going way than Mr. Wallace—until he comes to the middle of his very last chapter. He fully accepts "Mr. Darwin's conclusion 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"; but, when Darwin goes on to derive the moral nature and mental faculties of man from their rudiments in the lower animals in the same manner and by the action of the same general laws as his physical structure, Mr. Wallace refuses to follow him. He holds that there is "a spiritual world," and that just as the glacial epoch supervened on the geologic causes previously in operation, so an "influx" from this spiritual world has produced man's moral sense, his mathematical, artistic and metaphysical faculties.² He considers himself driven to this supposition because he believes that these faculties cannot be accounted for by natural selection. Yet, after

¹ *Darwinism*, pp. 274, 283, 296.

² *Ibid.* p. 463 ; comp. p. 476.

saying this, Mr. Wallace declares at the very end of his book that "the Darwinian theory, even when carried out to its extreme logical conclusion, not only does not oppose, but lends a decided support to a belief in the spiritual nature of man. It shows us how man's body may have been developed from that of a lower animal form under the law of natural selection; but it also teaches us that we possess intellectual and moral faculties which could not have been so developed, but must have had another origin; and for this origin we can only find an adequate cause in the unseen universe of spirit."¹ Now, however true Mr. Wallace's beliefs about the spiritual world may be, it does seem odd to say that they are a carrying out of the Darwinian theory "to its extreme logical conclusion." One has heard of the young officer who said that Aldershot was a very nice place—to get away from, and of the schoolboy (was he Irish?) who defined sugar as "what makes your tea so nasty when you don't put any in"; and so we may say that the Darwinian theory supports Mr. Wallace's views when he gets away from it, and when it is *not* applied to mental and moral evolution. This "spiritual world," which is postulated in order to account for the moral sense and the higher mathematics, is also to serve as an explanation of "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, since without these forces, and perhaps others which may be termed atomic, it is doubtful whether matter itself could have any existence. And still more surely can we refer to it those progressive manifestations of Life in the vegetable, the animal and man—which we may classify as unconscious, conscious and intellectual life—and which probably depend upon different degrees of spiritual influx."² Now, if gravitation, cohesion, &c., are the spiritual world, the ordinary man may well ask "Where is the non-spiritual world?" and an idealist philosopher, where such can be found, will echo the question in a slightly different tone. Nobody denies that gravitation, chemical affinity, life, consciousness, intelligence, represent an ascending scale. But if the word "spiritual" be extended to the lowest of them, does this mean anything very different from extending the word "material" to the highest of them? There is, indeed, a difference between naming the ultimate principle of the universe from the higher end of the scale or from the lower; but it is a difference in ontological theory and not on a question of physical causation, with which alone the biologist, as such, has to deal.

Leaving this matter for the present, let us see what reasons Mr. Wallace has for rejecting natural selection as an explanation of the moral and intellectual nature of man. At first sight one is rather startled by the fact that, in order to prove that these are not derived from the rudiments of them in the lower animals, Mr. Wallace takes,

¹ *Darwinism*, p. 478.

² *Ibid.* p. 476.

not some characteristic that seems to belong to all men and no animals—a characteristic such as Professor Max Müller considers language to be—Mr. Wallace takes the mathematical, musical and artistic faculties, which, according to his own statement, are to be found only in a very small number of human beings. According to the somewhat arbitrary statistics of the schoolmasters consulted by Mr. Wallace, only about 1 per cent. of the boys in an English public school “have any special taste or capacity for mathematical studies,” and only about 1 per cent., again, “have real or decided musical talent.”¹ The line of argument appears to be as follows: (1) These faculties, not being useful to man in the struggle for existence, could not have been developed by natural selection. (2) If they had been so developed, they would have been present among human beings with some approach to equality.

The question of the origin of the moral sense is put aside in *Darwinism*² as “far too vast and complex to be discussed” there; but some discussion of it cannot well be avoided, because it forms the best initial test of the adequacy or inadequacy of the theory of natural selection outside the merely biological domain. The late Professor Clifford’s brilliant but too brief contribution to ethics contains a more thorough-going application of the theory of natural selection to moral ideas than is to be found even in Darwin’s *Descent of Man*; for Darwin, in rather hesitating fashion, was still inclined to admit the transmission of acquired habits.³ Natural selection is also the principle of explanation adopted in Mr. Leslie Stephen’s *Science of Ethics*, and, more explicitly still, in Mr. S. Alexander’s *Moral Order and Progress*.

To put the matter very briefly: Man starts with social instincts of the same kind as are to be found developed in different degrees among the lower animals—and when we say “instincts” it is as well to remember what Mr. Wallace himself has so emphatically pointed out with regard to the lower animals: “Much of the mystery of instinct arises from the persistent refusal to recognise the agency of imitation, memory, observation and reason as forming part of it.” The social instincts of man cause him to live in groups; and the struggle for existence is carried on, not merely between individual and individual, but between group and group, this second type of struggle leading to a mitigation of the fierceness of the struggle within any particular group. Thus, it is to the advantage of a tribe to have as many capable fighting members as possible: they are no longer mere rivals for food, but comrades in pursuit of a common end. Those qualities that tend to the success of the tribe in its contests with other tribes are “selected” for survival, because the

¹ *Darwinism*, pp. 470, 471.

² *Ibid.* p. 462.

³ *E.g.*, p. 125 (edit. 2) “We may expect that virtuous habits will grow stronger, becoming fixed perhaps by inheritance.”

⁴ *Darwinism*, p. 442.

tribes that display opposite qualities fail and are destroyed. What promotes the welfare of the tribe is approved; what hinders it is condemned. "Conscience," as Clifford puts it, "is the tribal self." We must not, and need not, suppose any deliberate reflection in a primitive stage. In conduct, as in other regions of Nature, variations take place "spontaneously"—i.e., they happen to take place—how, or why, they take place is, as yet, a matter of pure speculation. The favourable variations are selected—i.e., the unfavourable variations lead to the failure and extinction of the organisms which display them. It is the same principle of natural selection which applies to variations in structure and functions, in habits, in implements: useful variations are continually being "selected," prior to any deliberate reflection about the adaptation of means to ends. Thus, in the ethical sphere, we have a selection of types of conduct; and these, the product of natural struggle and not of reflection, are the earliest moral ideals. Now all this has been put, as clearly as possible, by Mr. Wallace himself, in his earlier work, *Contributions to the Theory of Natural Selection* (1870), pp. 312, 313:—

"Capacity for acting in concert for protection and for the acquisition of food and shelter; sympathy, which leads all in turn to assist each other; the sense of right, which checks depredations upon our fellows; the smaller development of the combative and destructive propensities; self-restraint in present appetites; and that intelligent foresight which prepares for the future, are all qualities, that from their earliest appearance, must have been for the benefit of each community, and would, therefore, have become the subjects for natural selection. . . . Tribes in which such mental or moral qualities were predominant would, therefore, have an advantage in the struggle for existence over other tribes in which they were less developed, would live and maintain their numbers, while the others would decrease and finally succumb."

But for the evolution of morality it is not necessary that the struggle should always go so far as the extinction of all the individuals practising a hurtful custom. Successful types of custom are *imitated*, and the disappearance of injurious customs before their successful rival customs may take the place of the disappearance of the persons or tribes who practise the injurious customs. It is a further step, and a step that, more than anything else, marks the rise of civilisation out of barbarism, when deliberate *reflection* leads a group of human beings to change their customs in order to escape the penalties of suffering and extinction which come from a blind adherence to old customs that once promoted the well-being of the community, but in changed circumstances have now become hurtful. Natural selection does not cease to operate; but the conflict of ideas takes the place of the competition of animal organisms. *Imitation* and *reflection* impose a check on the mere physical struggle for existence; but, according to this evolutionist theory of morality, they are themselves the product of natural selection, and not of a distinct cause; and in the effects which they

produce upon customs and ideas, the principle of natural selection is not left behind, but applied in a new sphere.

The growth of morality implies, of course, an advance in brain development, by the elimination within each group of the inferior members, and, in the struggle between groups, of the inferior groups. Further, we must notice the immense acceleration of progress rendered possible by language; and Mr. Wallace does not seem to deny that the most complex of human languages differs only in degree from the sounds and gestures by which animals convey their feelings and emotions to one another. Language renders possible the transmission of experience irrespective of transmission by heredity. By means of language and of social institutions we inherit the acquired experience, not of our ancestors only, but of other races, in the same sense of "inheritance" in which we talk of people inheriting land or furniture or railway shares. Language renders possible an accumulation of experience, a storing up of achievements, which makes advance rapid and secure among human beings in a way impossible among the lower animals. Indeed, might we not define civilisation in general as the sum of those contrivances by which human beings become, to a great extent, independent of the effects of heredity? Civilisation is healthy when it works along with heredity. Mankind never becomes completely independent of the effects of heredity. And the highest civilisation falling to the inheritance of a decaying race will not prevent, and may even hasten its decay and extinction. Yet, though the race perishes, the civilisation need not be lost, but may be handed on to worthier and more capable heirs.

Consciousness, reflection, language, are all obviously advantages in the struggle for existence to the beings possessing them; and it is much the simplest hypothesis to ascribe the origin of all of them to natural selection, instead of postulating a mysterious intrusion from without. As Mr. Wallace himself says: "In a scientific inquiry a point which can be proved should not be assumed, and a totally unknown power should not be brought in to explain facts when known powers may be sufficient."¹ But once there, consciousness, reflection, language, carry human beings rapidly a long way from the point at which those animals were, among whom these variations first appeared. Mr. Wallace contends that the large brains of savages and the absence of hair from the greater part of the surface of the body are both inexplicable on the theory of natural selection.² Big brains and bare backs are, he thinks, no advantage to the savage, and therefore cannot be the subjects of natural selection. Is that so? The hairless *homo* with only a gorilla's brain would obviously be at a disadvantage compared with the gorilla, and would therefore disappear; but the disadvantage of a hairless skin has been more than compensated by the greater size of the brain. The

¹ *Contributions to the Theory of Natural Selection*, p. 205.

² *Ibid.* p. 348.

hairy covering has ceased to be a necessity, and, therefore, has not been selected; and natural selection has thus offered no impediment to the probable operation of sexual selection (in Darwin's sense) in furthering its disappearance. Greater brain development has allowed the luxury of sexual selection to operate without fatal results to the race. In any case, the greater the brain power, the less the necessity of a hairy covering. Nay, the progress of a hairless race has been brought about by the very needs of clothing and shelter adapted to varying circumstances, but only where these needs could be met because of greater brain development. Thus the difficulties, raised by Mr. Wallace with regard to these two differences between man and the animals taken separately, disappear when they are taken together.

Mr. Wallace himself¹ argues that the power possessed by savages of travelling through trackless forests comes not from instinct but from the use of the perceptive and reasoning faculties. Does not that imply the requirement of very considerable brain power? The civilised man uses his slightly greater brain power in many different ways, and therefore fails where the savage succeeds, his observation and his memory of what he has perceived being much less exact. As to the fact that the hair has disappeared from the back of *homo*, but not completely from the chest, is not that correlated with the adoption of the erect position? and that, again, with the differentiation of hands and feet? And the advantage in both these differences between man and the lower animals is to be found in the use of missiles and tools.

Mr. Wallace, in his treatment of the moral sense, raises the usual Intuitionist objections to Utilitarianism. He holds that "there is a feeling, a sense of right and wrong in our nature, antecedent to, and independent of, experiences of utility."² Now, it is just the application of the theory of natural selection in ethics that has removed the force of the Intuitionist objections to the pre-evolutionist Utilitarianism. It was easy enough to point out that men's moral judgments were not as a rule based on calculations of consequences, but were the result of unreflecting feeling. To the Evolutionist ethics this is no objection. The theory of natural selection makes it a necessity that those societies should survive in which the promptings of the tribal self have been most felt; and the mysterious "feelings" on which the Intuitionist falls back are thus accounted for. At the same time it is perfectly easy for the Evolutionist to explain why some virtues have been earlier recognised than others, and why the same acts have in different times and places been regarded as good or bad—standing difficulties to the Intuitionist. When reflection appears, however, a higher form of morality becomes possible; the useful—*i.e.*, what conduces to the welfare of the social

¹ *Contributions to the Theory of Natural Selection*, p. 207.

² *Ibid.* p. 354.

organism, is not recognised merely by the failure of those societies in which it is not pursued, but by deliberate reflection on the part of the more thoughtful members of the society. The utilitarian reformer reflects for his society, and anticipates and obviates the cruel process of natural selection by the more peaceful methods of legislative change. The theory of natural selection thus gives a new meaning to Utilitarianism. The beginnings of morality are explained, and Utilitarianism is thus saved from the reproach of being applicable only to highly developed races. And, secondly, the well-being of society, as the ethical end, is substituted for the individualist conception of a balance of pleasures and pains. "Happiness," says Professor Clifford, "is not the end of right action. My happiness is of no use to the community, except in so far as it makes me a more efficient citizen; that is to say, it is rightly desired as a means and not as an end."¹

Natural selection can be likewise applied to the explanation of the origin and development of social and political institutions, provided that sufficient account be taken of imitation and reflection, as produced by natural selection and yet counteracting the merely animal struggle for existence; provided also it be recognised that an idea or institution may supplant another without the individuals concerned being necessarily killed off in the process. Natural selection operates in the highest types of human society as well as in the rest of the organic realm; but it passes into a higher form of itself, in which the conflict of ideas and institutions takes the place of the struggle for existence between individuals and races.

The mathematical, the musical and the artistic faculties, the metaphysical faculty and "the peculiar faculty of wit and humour" are considered by Mr. Wallace to supply the strongest arguments for the insufficiency of natural selection to account for mental evolution. They are, he argues, of no use to savages, and yet men must have these faculties latent in them, because they appear, though in very different degrees, among civilised races. Now, in the first place, is it true that the mathematical faculty and the musical faculty are of no use to the lower races in their struggle for existence? Undoubtedly, the primitive savage who became abstracted over a mathematical problem, like Archimedes, would die of starvation, if he did not rather help to ward off the same calamity from wild beasts or other wild men; but the savage who could count more than five would have an advantage over his rivals who never got beyond the fingers of one hand; the mother who could not count her children would succeed in rearing fewer than the mother whose domestic arithmetic was always accurate; and the people who believed that two and two made five, whether on this planet or on that other feigned by John Stuart Mill, would be at a disadvantage in fighting with the people who had established the doctrine that two and two made

¹ *Lectures and Essays*, ii. p. 173.

four. Plato says that Agamemnon would have been a poor sort of general, if he had not been able to count his own feet; and Mr. Wallace himself admits the military advantage possessed by the Romans from their engineering skill. An Archimedes, though perhaps less useful as a heavy-armed soldier than a stupider man, was certainly of service to his fellow-citizens in the carrying on of war.

Elementary arithmetic and elementary perceptions of spatial relations would undoubtedly be useful to men living even under the rudest conditions, and the brains capable of very simple mathematical thinking may well enough be the ancestors of brains capable of more complex processes, if the capacity has been accumulated by favourable combinations of parents occurring again and again. It is not difficult to account for the fact that mathematical genius of a high order is sporadic, and rare even amongst the most civilised peoples. Mathematical genius of a high order, not being useful to the individual or the tribe under rude conditions, nor even under more advanced conditions, has not been selected as a characteristic of the species *homo* (in the way in which the capacity for language has been); nor has it become the special characteristic of any marked division of mankind, like any particular race-characteristic. Under rude conditions such high scientific capacity would even be injurious; under fairly settled conditions it ceases to be injurious, its possessor is under no great disadvantage, and thus under favourable conditions mathematics is cultivated. Senior Wranglers may not always be useful members of society; but the society that can produce mathematicians of the quality of the average Senior Wrangler is likely to have good stuff in it for success in the struggle with Nature and with other societies. We must remember also that, besides the inheritance of a brain, which by accumulated favourable combinations of ancestry is capable of high mathematical thinking, various other conditions are requisite for the proper development of this capacity. The art of writing, the Hindoo system of numerical notation, access to printed text-books, the opportunity of going to Cambridge, are all conditions for the development of latent inherited mathematical capacity. On the other hand, suppose a man born even at the present day with the brains of a Newton (and perhaps with the feeble body of a Newton also), in the backwoods of Western America, he would probably prove a failure, unless he could turn his gifts to the purposes of commercial speculation: he would be very unlikely to become an eminent mathematician.

The same arguments will apply in the case of music. It is most certainly untrue that music has not been useful to tribes in their struggle for existence. The bard has been no inconsiderable factor in stimulating the courage and furthering the cohesion of human societies. "Let who will make the laws of a nation, let me make its ballads," said Fletcher of Saltoun; and, if for "ballads" we put the more general term "songs," the truth is still more obvious. The

Marseillaise and *Die Wacht am Rhein* count for a good deal in the successes of French and German armies. It was not in vain that, according to the legend (which expresses at least a general truth), the Lacedæmonians received from Athens the lame schoolmaster, who inspired their drooping courage by his songs; nor that the militant Dorians in general understood the value of music. Music having established its social utility in this way, there can be no doubt that sexual selection (in Darwin's sense) would come in to help the preservation and increase of any musical talent that appeared. The bard would be among the first kind of man admired for some other quality than fighting power or skill in hunting, and therefore preferred as a mate. Would not Mr. Wallace's arguments against the utility of music apply equally to the songs of birds, and would he not be equally justified in inferring that the lark and the nightingale manifest, as certain of our poets have said, an influx from the spiritual world?

But, of course, a highly complex music, if it could have arisen among savages, would be of no use to them. In order that the great musician may appear, not only must there be the physical inheritance of a fortunate combination of musical qualities, but there must be sufficient leisure and civilisation to save this comparatively rare "variation" from being speedily extinguished; and he must appear among a people who inherit socially a sufficient musical notation and sufficiently complex musical instruments. Mr. Wallace's objections seem plausible in great measure because he isolates the different forms of intellectual and æsthetic capacity, as if these could exist separately. The music of savages is the germ of the music of Beethoven; but the gap between them is filled by advance, not in music only, but in a vast number of other things.

As to what is quaintly called "the metaphysical faculty," it will be generally agreed that if a man in the Stone Age, instead of sending his flint arrows at something he could eat, had sat down to think how motion was possible, or how contradictory movements are united in his handling of the bow, he would, like his mathematical brother, have supplied the cave-bear with a dinner, and not *vice versa*. But what appears as metaphysics among races who have won leisure to reflect, and have developed a complex language capable of expressing abstract ideas, had appeared long before as the mythopœic tendency. This, perhaps, should be called, in Weismann's phrase, a "by-product" of the human mind. Reflection about the adaptation of means to ends for the purpose of everyday life is undoubtedly useful to the savage; but reflection on these subjects makes reflection possible on other subjects also, subjects quite unprofitable at first, such as "What makes the thunder?" "Why is the sea salt?" "Why do the flowers come up in the spring-time?" and so on. And language, being useful for the communication of practical projects, serves also to hand down even "useless" myths and

legends. Yet are they useless? They serve to cement the bond between man and man, and thus have not been crushed out in the struggle for existence till they come to be a direct hindrance to progress; and then they disappear before the growth of scientific ideas, except where they linger on as old wives' fables or children's fairy tales. Yet the crudest mythology is primitive science and primitive philosophy.

"The peculiar faculty of wit and humour," which "appears sporadically in a very small percentage of the population,"¹ is, we may allow, not useful, except, indeed, in so far as saying clever things keeps people from doing foolish ones; and since wit is only a bye-product of a complex brain, and not a variation useful to the species, we can easily account for its sporadic appearance and for the fact that most men "joke wi' deeficulty." Wit can only exist where there is a general high average of brain power, which is useful. When life can be taken with some amount of ease, then, and only then, do this and the other bye-products get a chance and escape destruction.

Thus natural selection, which is a true cause, seems a perfectly adequate cause to account for the appearance of all those intellectual capacities of human nature; and, if social evolution be rightly understood, there is nothing contradictory to natural selection in the occasional appearance of very high forms of them. The spiritual world need not be summoned as a mysterious counterpart to the material world, intruding itself into the latter, wherever the scientific investigator finds a difficulty at first sight, or the person who is afraid of science finds a convenient place of refuge for threatened beliefs. If a spiritual principle is recognised in the universe, it must be recognised not in the exceptional, not in holes and corners, like those intramundane spaces in which Epicurus stowed away the gods; but a spiritual principle must be recognised everywhere, as the condition of our knowing a system of nature. And Mr. Wallace is perhaps on the way to a sounder philosophy when he speaks of even gravitation as "spiritual," and sees, though dimly, that mere matter can have no existence, than when he uses intuitionist arguments about the moral sense, and treats mathematics and music as miracles due to a spiritual influx pouring in like a glacier on the world which is known to the ordinary biologist. Not in an exceptional *origin* of certain rare human qualities, but in the *nature* of human thought, however originated, is to be found the true spiritual greatness of man; and in the achievements of the human spirit in the institutions of society, in art, in religion, in science, and in philosophy is to be read, if anywhere, the little we can read about the ultimate meaning of the universe.

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¹ *Darwinism*, p. 472.