



Alfred Russell Wallace

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THE DEVELOPMENT OF HUMAN RACES UNDER THE LAW OF NATURAL SELEC- TION.

AMONG the most advanced students of man, there exists a wide difference of opinion on some of the most vital questions respecting his nature and origin. Anthropologists are now, indeed, pretty well agreed that man is not a recent introduction into the earth. All who have studied the question, now admit that his antiquity is very great; and that, though we have to some extent ascertained the minimum of time during which he *must* have existed, we have made no approximation towards determining that far greater period during which he *may* have, and probably *has* existed. We can with tolerable certainty affirm that man must have inhabited the earth a thousand centuries ago, but we cannot assert that he positively did not exist, or that there is any good evidence against his having existed, for a period of ten thousand centuries. We know positively, that he was contemporaneous with many now extinct animals, and has survived changes of the earth's surface fifty or a hundred times greater than any that have occurred during the historical period; but we cannot place any definite limit to the number

of species he may have outlived, or to the amount of terrestrial change he may have witnessed.

Wide differences of opinion as to Man's Origin.

But while on this question of man's antiquity there is a very general agreement,—and all are waiting eagerly for fresh evidence to clear up those points which all admit to be full of doubt,—on other, and not less obscure and difficult questions, a considerable amount of dogmatism is exhibited; doctrines are put forward as established truths, no doubt or hesitation is admitted, and it seems to be supposed that no further evidence is required, or that any new facts can modify our convictions. This is especially the case when we inquire,—Are the various forms under which man now exists primitive, or derived from pre-existing forms; in other words, is man of one or many species? To this question we immediately obtain distinct answers diametrically opposed to each other: the one party positively maintaining, that man is a *species* and is essentially *one*—that all differences are but local and temporary variations, produced by the different physical and moral conditions by which he is surrounded; the other party maintaining with equal confidence, that man is a genus of *many species*, each of which is practically unchangeable, and has ever been as distinct, or even more distinct, than we now behold them. This difference of opinion is somewhat remarkable, when we consider that both parties are well acquainted with the subject; both use the same

vast accumulation of facts; both reject those early traditions of mankind which profess to give an account of his origin; and both declare that they are seeking fearlessly after truth alone; yet each will persist in looking only at the portion of truth on his own side of the question, and at the error which is mingled with his opponent's doctrine. It is my wish to show how the two opposing views can be combined, so as to eliminate the error and retain the truth in each, and it is by means of Mr. Darwin's celebrated theory of "Natural Selection" that I hope to do this, and thus to harmonise the conflicting theories of modern anthropologists.

Let us first see what each party has to say for itself. In favour of the unity of mankind it is argued, that there are no races without transitions to others; that every race exhibits within itself variations of colour, of hair, of feature, and of form, to such a degree as to bridge over, to a large extent, the gap that separates it from other races. It is asserted that no race is homogeneous; that there is a tendency to vary; that climate, food, and habits produce, and render permanent, physical peculiarities, which, though slight in the limited periods allowed to our observation, would, in the long ages during which the human race has existed, have sufficed to produce all the differences that now appear. It is further asserted that the advocates of the opposite theory do not agree among themselves; that some would make three, some five, some fifty or a hundred and fifty species of man; some would have

had each species created in pairs, while others require nations to have at once sprung into existence, and that there is no stability or consistency in any doctrine but that of one primitive stock.

The advocates of the original diversity of man, on the other hand, have much to say for themselves. They argue that proofs of change in man have never been brought forward except to the most trifling amount, while evidence of his permanence meets us everywhere. The Portuguese and Spaniards, settled for two or three centuries in South America, retain their chief physical, mental, and moral characteristics; the Dutch boers at the Cape, and the descendants of the early Dutch settlers in the Moluccas, have not lost the features or the colour of the Germanic races; the Jews, scattered over the world in the most diverse climates, retain the same characteristic lineaments everywhere; the Egyptian sculptures and paintings show us that, for at least 4000 or 5000 years, the strongly contrasted features of the Negro and the Semitic races have remained altogether unchanged; while more recent discoveries prove, that the mound-builders of the Mississippi valley, and the dwellers on Brazilian mountains, had, even in the very infancy of the human race, some traces of the same peculiar and characteristic type of cranial formation that now distinguishes them.

If we endeavour to decide impartially on the merits of this difficult controversy, judging solely by the evidence that each party has brought forward, it certainly

seems that the best of the argument is on the side of those who maintain the primitive diversity of man. Their opponents have not been able to refute the permanence of existing races as far back as we can trace them, and have failed to show, in a single case, that at any former epoch the well marked varieties of mankind approximated more closely than they do at the present day. At the same time this is but negative evidence. A condition of immobility for four or five thousand years, does not preclude an advance at an earlier epoch, and—if we can show that there are causes in nature which would check any further physical change when certain conditions were fulfilled—does not even render such an advance improbable, if there are any general arguments to be adduced in its favour. Such a cause, I believe, does exist; and I shall now endeavour to point out its nature and its mode of operation.

Outline of the Theory of Natural Selection.

In order to make my argument intelligible, it is necessary for me to explain very briefly the theory of "Natural Selection" promulgated by Mr. Darwin, and the power which it possesses of modifying the forms of animals and plants. The grand feature in the multiplication of organic life is, that close general resemblance is combined with more or less individual variation. The child resembles its parents or ancestors more or less closely in all its peculiarities, deformities, or beauties; it resembles them in general more than it

does any other individuals; yet children of the same parents are not all alike, and it often happens that they differ very considerably from their parents and from each other. This is equally true, of man, of all animals, and of all plants. Moreover, it is found that individuals do not differ from their parents in certain particulars only, while in all others they are exact duplicates of them. They differ from them and from each other, in every particular: in form, in size, in colour; in the structure of internal as well as of external organs; in those subtle peculiarities which produce differences of constitution, as well as in those still more subtle ones which lead to modifications of mind and character. In other words, in every possible way, in every organ and in every function, individuals of the same stock vary.

Now, health, strength, and long life, are the results of a harmony between the individual and the universe that surrounds it. Let us suppose that at any given moment this harmony is perfect. A certain animal is exactly fitted to secure its prey, to escape from its enemies, to resist the inclemencies of the seasons, and to rear a numerous and healthy offspring. But a change now takes place. A series of cold winters, for instance, come on, making food scarce, and bringing an immigration of some other animals to compete with the former inhabitants of the district. The new immigrant is swift of foot, and surpasses its rivals in the pursuit of game; the winter nights are colder, and require a thicker fur as a protection, and more

nourishing food to keep up the heat of the system. Our supposed perfect animal is no longer in harmony with its universe; it is in danger of dying of cold or of starvation. But the animal varies in its offspring. Some of these are swifter than others—they still manage to catch food enough; some are hardier and more thickly furred—they manage in the cold nights to keep warm enough; the slow, the weak, and the thinly clad soon die off. Again and again, in each succeeding generation, the same thing takes place. By this natural process, which is so inevitable that it cannot be conceived not to act, those best adapted to live, live; those least adapted, die. It is sometimes said that we have no direct evidence of the action of this selecting power in nature. But it seems to me we have better evidence than even direct observation would be, because it is more universal, viz., the evidence of necessity. It must be so; for, as all wild animals increase in a geometrical ratio, while their actual numbers remain on the average stationary, it follows, that as many die annually as are born. If, therefore, we deny natural selection, it can only be by asserting that, in such a case as I have supposed, the strong, the healthy, the swift, the well clad, the well organised animals in every respect, have no advantage over,—do not on the average live longer than, the weak, the unhealthy, the slow, the ill-clad, and the imperfectly organised individuals; and this no sane man has yet been found hardy enough to assert. But this is not all; for the offspring on the average resemble their parents, and

the selected portion of each succeeding generation will therefore be stronger, swifter, and more thickly furred than the last; and if this process goes on for thousands of generations, our animal will have again become thoroughly in harmony with the new conditions in which it is placed. But it will now be a different creature. It will be not only swifter and stronger, and more furry, it will also probably have changed in colour, in form, perhaps have acquired a longer tail, or differently shaped ears; for it is an ascertained fact, that when one part of an animal is modified, some other parts almost always change, as it were in sympathy with it. Mr. Darwin calls this "correlation of growth," and gives as instances, that hairless dogs have imperfect teeth; white cats, when blue-eyed, are deaf; small feet accompany short beaks in pigeons; and other equally interesting cases.

Grant, therefore, the premises: 1st. That peculiarities of every kind are more or less hereditary. 2nd. That the offspring of every animal vary more or less in all parts of their organization. 3rd. That the universe in which these animals live, is not absolutely invariable;—none of which propositions can be denied; and then consider, that the animals in any country (those at least which are not dying out) must at each successive period be brought into harmony with the surrounding conditions; and we have all the elements for a change of form and structure in the animals, keeping exact pace with changes of whatever nature in the surrounding universe. Such changes must be

slow, for the changes in the universe are very slow; but just as these slow changes become important, when we look at results after long periods of action, as we do when we perceive the alterations of the earth's surface during geological epochs; so the parallel changes in animal form become more and more striking, in proportion as the time they have been going on is great; as we see when we compare our living animals with those which we disentomb from each successively older geological formation.

This is, briefly, the theory of "natural selection," which explains the changes in the organic world as being parallel with, and in part dependent on, those in the inorganic. What we now have to inquire is,—Can this theory be applied in any way to the question of the origin of the races of man? or is there anything in human nature that takes him out of the category of those organic existences, over whose successive mutations it has had such powerful sway?

Different effects of Natural Selection on Animals and on Man.

In order to answer these questions, we must consider why it is that "natural selection" acts so powerfully upon animals; and we shall, I believe, find, that its effect depends mainly upon their self-dependence and individual isolation. A slight injury, a temporary illness, will often end in death, because it leaves the individual powerless against its enemies. If an herbivorous animal is a little sick and has not fed well for a

day or two, and the herd is then pursued by a beast of prey, our poor invalid inevitably falls a victim. So, in a carnivorous animal, the least deficiency of vigour prevents its capturing food, and it soon dies of starvation. There is, as a general rule, no mutual assistance between adults, which enables them to tide over a period of sickness. Neither is there any division of labour; each must fulfil *all* the conditions of its existence, and, therefore, "natural selection" keeps all up to a pretty uniform standard.

But in man, as we now behold him, this is different. He is social and sympathetic. In the rudest tribes the sick are assisted, at least with food; less robust health and vigour than the average does not entail death. Neither does the want of perfect limbs, or other organs, produce the same effects as among animals. Some division of labour takes place; the swiftest hunt, the less active fish, or gather fruits; food is, to some extent, exchanged or divided. The action of natural selection is therefore checked; the weaker, the dwarfish, those of less active limbs, or less piercing eyesight, do not suffer the extreme penalty which falls upon animals so defective.

In proportion as these physical characteristics become of less importance, mental and moral qualities will have increasing influence on the well-being of the race. 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 of "natural selection." For it is evident that such qualities would be for the well-being of man; would guard him against external enemies, against internal dissensions, and against the effects of inclement seasons and impending famine, more surely than could any merely physical modification. Tribes in which such mental and 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.

Again, when any slow changes of physical geography, or of climate, make it necessary for an animal to alter its food, its clothing, or its weapons, it can only do so by the occurrence of a corresponding change in its own bodily structure and internal organization. If a larger or more powerful beast is to be captured and devoured, as when a carnivorous animal which has hitherto preyed on antelopes is obliged from their decreasing numbers to attack buffaloes, it is only the strongest who can hold,—those with most powerful claws, and formidable canine teeth, that can struggle with and overcome such an animal. Natural

selection immediately comes into play, and by its action these organs gradually become adapted to their new requirements. But man, under similar circumstances, does not require longer nails or teeth, greater bodily strength or swiftness. He makes sharper spears, or a better bow, or he constructs a cunning pitfall, or combines in a hunting party to circumvent his new prey. The capacities which enable him to do this are what he requires to be strengthened, and these will, therefore, be gradually modified by "natural selection," while the form and structure of his body will remain unchanged. So, when a glacial epoch comes on, some animals must acquire warmer fur, or a covering of fat, or else die of cold. Those best clothed by nature are, therefore, preserved by natural selection. Man, under the same circumstances, will make himself warmer clothing, and build better houses; and the necessity of doing this will react upon his mental organization and social condition—will advance them while his natural body remains naked as before.

When the accustomed food of some animal becomes scarce or totally fails, it can only exist by becoming adapted to a new kind of food, a food perhaps less nourishing and less digestible. "Natural selection" will now act upon the stomach and intestines, and all their individual variations will be taken advantage of, to modify the race into harmony with its new food. In many cases, however, it is probable that this cannot be done. The internal organs may not vary quick enough, and then the animal will decrease in numbers,

and finally become extinct. But man guards himself from such accidents by superintending and guiding the operations of nature. He plants the seed of his most agreeable food, and thus procures a supply, independent of the accidents of varying seasons or natural extinction. He domesticates animals, which serve him either to capture food or for food itself, and thus, changes of any great extent in his teeth or digestive organs are rendered unnecessary. Man, too, has everywhere the use of fire, and by its means can render palatable a variety of animal and vegetable substances, which he could hardly otherwise make use of; and thus obtains for himself a supply of food far more varied and abundant than that which any animal can command.

Thus man, by the mere capacity of clothing himself, and making weapons and tools, has taken away from nature that power of slowly but permanently changing the external form and structure, in accordance with changes in the external world, which she exercises over all other animals. As the competing races by which they are surrounded, the climate, the vegetation, or the animals which serve them for food, are slowly changing, they must undergo a corresponding change in their structure, habits, and constitution, to keep them in harmony with the new conditions—to enable them to live and maintain their numbers. But man does this by means of his intellect alone, the variations of which enable him, with an unchanged body, still to keep in harmony with the changing universe.

There is one point, however, in which nature will still act upon him as it does on animals, and, to some extent, modify his external characters. Mr. Darwin has shown, that the colour of the skin is correlated with constitutional peculiarities both in vegetables and animals, so that liability to certain diseases or freedom from them is often accompanied by marked external characters. Now, there is every reason to believe that this has acted, and, to some extent, may still continue to act, on man. In localities where certain diseases are prevalent, those individuals of savage races which were subject to them would rapidly die off; while those who were constitutionally free from the disease would survive, and form the progenitors of a new race. These favoured individuals would probably be distinguished by peculiarities of *colour*, with which again peculiarities in the texture or the abundance of *hair* seem to be correlated, and thus may have been brought about those racial differences of *colour*, which seem to have no relation to mere temperature or other obvious peculiarities of climate.

From the time, therefore, when the social and sympathetic feelings came into active operation, and the intellectual and moral faculties became fairly developed, man would cease to be influenced by "natural selection" in his physical form and structure. As an animal he would remain almost stationary, the changes of the surrounding universe ceasing to produce in him that powerful modifying effect which they exercise over other parts of the organic world. But from the

moment that the form of his body became stationary, his mind would become subject to those very influences from which his body had escaped; every slight variation in his mental and moral nature which should enable him better to guard against adverse circumstances, and combine for mutual comfort and protection, would be preserved and accumulated; the better and higher specimens of our race would therefore increase and spread, the lower and more brutal would give way and successively die out, and that rapid advancement of mental organization would occur, which has raised the very lowest races of man so far above the brutes (although differing so little from some of them in physical structure), and, in conjunction with scarcely perceptible modifications of form, has developed the wonderful intellect of the European races.

Influence of external Nature in the development of the Human Mind.

But from the time when this mental and moral advance commenced, and man's physical character became fixed and almost immutable, a new series of causes would come into action, and take part in his mental growth. The diverse aspects of nature would now make themselves felt, and profoundly influence the character of the primitive man.

When the power that had hitherto modified the body had its action transferred to the mind, then races would advance and become improved, merely by the harsh discipline of a sterile soil and inclement seasons. Under

their influence, a hardier, a more provident, and a more social race would be developed, than in those regions where the earth produces a perennial supply of vegetable food, and where neither foresight nor ingenuity are required to prepare for the rigours of winter. And is it not the fact that in all ages, and in every quarter of the globe, the inhabitants of temperate have been superior to those of hotter countries? All the great invasions and displacements of races have been from North to South, rather than the reverse; and we have no record of there ever having existed, any more than there exists to-day, a solitary instance of an indigenous inter-tropical civilization. The Mexican civilization and government came from the North, and, as well as the Peruvian, was established, not in the rich tropical plains, but on the lofty and sterile plateaux of the Andes. The religion and civilization of Ceylon were introduced from North India; the successive conquerors of the Indian peninsula came from the North-west; the northern Mongols conquered the more Southern Chinese; and it was the bold and adventurous tribes of the North that overran and infused new life into Southern Europe.

Extinction of Lower Races.

It is the same great law of "the preservation of favoured races in the struggle for life," which leads to the inevitable extinction of all those low and mentally undeveloped populations with which Europeans come in contact. The red Indian in North

America, and in Brazil; the Tasmanian, Australian, and New Zealander in the southern hemisphere, die out, not from any one special cause, but from the inevitable effects of an unequal mental and physical struggle. The intellectual and moral, as well as the physical, qualities of the European are superior; the same powers and capacities which have made him rise in a few centuries from the condition of the wandering savage with a scanty and stationary population, to his present state of culture and advancement, with a greater average longevity, a greater average strength, and a capacity of more rapid increase,—enable him when in contact with the savage man, to conquer in the struggle for existence, and to increase at his expense, just as the better adapted, increase at the expense of the less adapted varieties in the animal and vegetable kingdoms,—just as the weeds of Europe overrun North America and Australia, extinguishing native productions by the inherent vigour of their organization, and by their greater capacity for existence and multiplication.

The Origin of the Races of Man.

If these views are correct; if in proportion as man's social, moral, and intellectual faculties became developed, his physical structure would cease to be affected by the operation of "natural selection," we have a most important clue to the origin of races. For it will follow, that those great modifications of structure and of external form, which resulted in the

development of man out of some lower type of animal, must have occurred before his intellect had raised him above the condition of the brutes, at a period when he was gregarious, but scarcely social, with a mind perceptive but not reflective, ere any sense of *right* or feelings of *sympathy* had been developed in him. He would be still subject, like the rest of the organic world, to the action of "natural selection," which would retain his physical form and constitution in harmony with the surrounding universe. He was probably at a very early period a dominant race, spreading widely over the warmer regions of the earth as it then existed, and in agreement with what we see in the case of other dominant species, gradually becoming modified in accordance with local conditions. As he ranged farther from his original home, and became exposed to greater extremes of climate, to greater changes of food, and had to contend with new enemies, organic and inorganic, slight useful variations in his constitution would be selected and rendered permanent, and would, on the principle of "correlation of growth," be accompanied by corresponding external physical changes. Thus might have arisen those striking characteristics and special modifications which still distinguish the chief races of mankind. The red, black, yellow, or blushing white skin; the straight, the curly, the woolly hair; the scanty or abundant beard; the straight or oblique eyes; the various forms of the pelvis, the cranium, and other parts of the skeleton.

But while these changes had been going on, his

mental development had, from some unknown cause, greatly advanced, and had now reached that condition in which it began powerfully to influence his whole existence, and would therefore become subject to the irresistible action of "natural selection." This action would quickly give the ascendancy to mind: speech would probably now be first developed, leading to a still further advance of the mental faculties; and from that moment man, as regards the form and structure of most parts of his body, would remain almost stationary. The art of making weapons, division of labour, anticipation of the future, restraint of the appetites, moral, social, and sympathetic feelings, would now have a preponderating influence on his well being, and would therefore be that part of his nature on which "natural selection" would most powerfully act; and we should thus have explained that wonderful persistence of mere physical characteristics, which is the stumbling-block of those who advocate the unity of mankind.

We are now, therefore, enabled to harmonise the conflicting views of anthropologists on this subject. Man may have been, indeed I believe must have been, once a homogeneous race; but it was at a period of which we have as yet discovered no remains, at a period so remote in his history, that he had not yet acquired that wonderfully developed brain, the organ of the mind, which now, even in his lowest examples, raises him far above the highest brutes;—at a period when he had the form but hardly the nature of man, when

he neither possessed human speech, nor those sympathetic and moral feelings which in a greater or less degree everywhere now distinguish the race. Just in proportion as these truly human faculties became developed in him, would his physical features become fixed and permanent, because the latter would be of less importance to his well being; he would be kept in harmony with the slowly changing universe around him, by an advance in mind, rather than by a change in body. If, therefore, we are of opinion that he was not really man till these higher faculties were fully developed, we may fairly assert that there were many originally distinct races of men; while, if we think that a being closely resembling us in form and structure, but with mental faculties scarcely raised above the brute, must still be considered to have been human, we are fully entitled to maintain the common origin of all mankind.

The Bearing of these Views on the Antiquity of Man.

These considerations, it will be seen, enable us to place the origin of man at a much more remote geological epoch than has yet been thought possible. He may even have lived in the Miocene or Eocene period, when not a single mammal was identical in form with any existing species. For, in the long series of ages during which these primeval animals were being slowly changed into the species which now inhabit the earth, the power which acted to modify them would only

affect the mental organization of man. His brain alone would have increased in size and complexity, and his cranium have undergone corresponding changes of form, while the whole structure of lower animals was being changed. This will enable us to understand how the fossil crania of Denise and Engis agree so closely with existing forms, although they undoubtedly existed in company with large mammalia now extinct. The Neanderthal skull may be a specimen of one of the lowest races then existing, just as the Australians are the lowest of our modern epoch. We have no reason to suppose that mind and brain and skull modification, could go on quicker than that of the other parts of the organization; and we must therefore look back very far in the past, to find man in that early condition in which his mind was not sufficiently developed, to remove his body from the modifying influence of external conditions and the cumulative action of "natural selection." I believe, therefore, that there is no *à priori* reason against our finding the remains of man or his works in the tertiary deposits. The absence of all such remains in the European beds of this age has little weight, because, as we go further back in time, it is natural to suppose that man's distribution over the surface of the earth was less universal than at present.

Besides, Europe was in a great measure submerged during the tertiary epoch; and though its scattered islands may have been uninhabited by man, it by no means follows that he did not at the same time exist in warm or tropical continents. If geologists can point

out to us the most extensive land in the warmer regions of the earth, which has not been submerged since Eocene or Miocene times, it is there that we may expect to find some traces of the very early progenitors of man. It is there that we may trace back the gradually decreasing brain of former races, till we come to a time when the body also begins materially to differ. Then we shall have reached the starting point of the human family. Before that period, he had not mind enough to preserve his body from change, and would, therefore, have been subject to the same comparatively rapid modifications of form as the other mammalia.

Their Bearing on the Dignity and Supremacy of Man.

If the views I have here endeavoured to sustain have any foundation, they give us a new argument for placing man apart, as not only the head and culminating point of the grand series of organic nature, but as in some degree a new and distinct order of being. From those infinitely remote ages, when the first rudiments of organic life appeared upon the earth, every plant, and every animal has been subject to one great law of physical change. As the earth has gone through its grand cycles of geological, climatal, and organic progress, every form of life has been subject to its irresistible action, and has been continually, but imperceptibly moulded into such new shapes as would preserve their harmony with the ever-changing universe. No living thing could escape this law of its being; none (except, perhaps, the simplest and most rudi-

mentary organisms), could remain unchanged and live, amid the universal change around it.

At length, however, there came into existence a being in whom that subtle force we term *mind*, became of greater importance than his mere bodily structure. Though with a naked and unprotected body, *this* gave him clothing against the varying inclemencies of the seasons. Though unable to compete with the deer in swiftness, or with the wild bull in strength, *this* gave him weapons with which to capture or overcome both. Though less capable than most other animals of living on the herbs and the fruits that unaided nature supplies, this wonderful faculty taught him to govern and direct nature to his own benefit, and make her produce food for him, when and where he pleased. From the moment when the first skin was used as a covering, when the first rude spear was formed to assist in the chase, when fire was first used to cook his food, when the first seed was sown or shoot planted, a grand revolution was effected in nature, a revolution which in all the previous ages of the earth's history had had no parallel, for a being had arisen who was no longer necessarily subject to change with the changing universe—a being who was in some degree superior to nature, inasmuch as he knew how to control and regulate her action, and could keep himself in harmony with her, not by a change in body, but by an advance of mind.

Here, then, we see the true grandeur and dignity of man. On this view of his special attributes, we

may admit, that even those who claim for him a position as an order, a class, or a sub-kingdom by himself, have some show of reason on their side. He is, indeed, a being apart, since he is not influenced by the great laws which irresistibly modify all other organic beings. Nay more; this victory which he has gained for himself, gives him a directing influence over other existences. Man has not only escaped "natural selection" himself, but he is actually able to take away some of that power from nature which before his appearance she universally exercised. We can anticipate the time when the earth will produce only cultivated plants and domestic animals; when man's selection shall have supplanted "natural selection;" and when the ocean will be the only domain in which that power can be exerted, which for countless cycles of ages ruled supreme over all the earth.

Their Bearing on the future Development of Man.

We now find ourselves enabled to answer those who maintain, that if Mr. Darwin's theory of the Origin of Species is true, man too must change in form, and become developed into some other animal as different from his present self as he is from the Gorilla or the Chimpanzee; and who speculate on what this form is likely to be. But it is evident that such will not be the case; for no change of conditions is conceivable, which will render any important alteration of his form and organization so universally useful and necessary to him, as to give those possessing it always the best chance of

surviving, and thus lead to the development of a new species, genus, or higher group of man. On the other hand, we know that far greater changes of conditions and of his entire environment have been undergone by man, than any other highly organized animal could survive unchanged, and have been met by mental, not corporeal adaptation. The difference of habits, of food, clothing, weapons, and enemies, between savage and civilized man, is enormous. Difference in bodily form and structure there is practically none, except a slightly increased size of brain, corresponding to his higher mental development.

We have every reason to believe, then, that man may have existed and may continue to exist, through a series of geological periods which shall see all other forms of animal life again and again changed; while he himself remains unchanged, except in the two particulars already specified—the head and face, as immediately connected with the organ of the mind and as being the medium of expressing the most refined emotions of his nature,—and to a slight extent in colour, hair, and proportions, so far as they are correlated with constitutional resistance to disease.

Summary.

Briefly to recapitulate the argument;—in two distinct ways has man escaped the influence of those laws which have produced unceasing change in the animal world. 1. By his superior intellect he is enabled to provide himself with clothing and weapons, and

by cultivating the soil to obtain a constant supply of congenial food. This renders it unnecessary for his body, like those of the lower animals, to be modified in accordance with changing conditions—to gain a warmer natural covering, to acquire more powerful teeth or claws, or to become adapted to obtain and digest new kinds of food, as circumstances may require. 2. By his superior sympathetic and moral feelings, he becomes fitted for the social state; he ceases to plunder the weak and helpless of his tribe; he shares the game which he has caught with less active or less fortunate hunters, or exchanges it for weapons which even the weak or the deformed can fashion; he saves the sick and wounded from death; and thus the power which leads to the rigid destruction of all animals who cannot in every respect help themselves, is prevented from acting on him.

This power is “natural selection;” and, as by no other means can it be shown, that individual variations can ever become accumulated and rendered permanent so as to form well-marked races, it follows that the differences which now separate mankind from other animals, must have been produced before he became possessed of a human intellect or human sympathies. This view also renders possible, or even requires, the existence of man at a comparatively remote geological epoch. For, during the long periods in which other animals have been undergoing modification in their whole structure, to such an amount as to constitute distinct genera and families, man’s *body* will

have remained generically, or even specifically, the same, while his *head* and *brain* alone will have undergone modification equal to theirs. We can thus understand how it is that, judging from the head and brain, Professor Owen places man in a distinct sub-class of mammalia, while as regards the bony structure of his body, there is the closest anatomical resemblance to the anthropoid apes, “every tooth, every bone, strictly homologous—which makes the determination of the difference between *Homo* and *Pithecus* the anatomist’s difficulty.” The present theory fully recognises and accounts for these facts; and we may perhaps claim as corroborative of its truth, that it neither requires us to depreciate the intellectual chasm which separates man from the apes, nor refuses full recognition of the striking resemblances to them, which exist in other parts of his structure.

Conclusion.

In concluding this brief sketch of a great subject, I would point out its bearing upon the future of the human race. If my conclusions are just, it must inevitably follow that the higher—the more intellectual and moral—must displace the lower and more degraded races; and the power of “natural selection,” still acting on his mental organization, must ever lead to the more perfect adaptation of man’s higher faculties to the conditions of surrounding nature, and to the exigencies of the social state. While his external form will probably ever remain unchanged, except in

the development of that perfect beauty which results from a healthy and well organized body, refined and ennobled by the highest intellectual faculties and sympathetic emotions, his mental constitution may continue to advance and improve, till the world is again inhabited by a single nearly homogeneous race, no individual of which will be inferior to the noblest specimens of existing humanity.

Our progress towards such a result is very slow, but it still seems to be a progress. We are just now living at an abnormal period of the world's history, owing to the marvellous developments and vast practical results of science, having been given to societies too low morally and intellectually, to know how to make the best use of them, and to whom they have consequently been curses as well as blessings. Among civilized nations at the present day, it does not seem possible for natural selection to act in any way, so as to secure the permanent advancement of morality and intelligence; for it is indisputably the mediocre, if not the low, both as regards morality and intelligence, who succeed best in life and multiply fastest. Yet there is undoubtedly an advance—on the whole a steady and a permanent one—both in the influence on public opinion of a high morality, and in the general desire for intellectual elevation; and as I cannot impute this in any way to “survival of the fittest,” I am forced to conclude that it is due, to the inherent progressive power of those glorious qualities which raise us so immeasurably above our fellow animals, and at the same time afford us the

surest proof that there are other and higher existences than ourselves, from whom these qualities may have been derived, and towards whom we may be ever tending.