

apostle, that "The whole creation groaneth and travaileth in pain." In fact, so shocked have some been by the mystery, of which the revelation they have cast aside offers the only solution, that they have been driven to utterances of despair.

Mr. Winwood Reade, in his "Martyrdom of Man," says:—"Pain, grief, disease and death, are these the inventions of a loving God? That no animal shall rise to excellence except by being fatal to the life of others, is this the law of a kind Creator? It is useless to say that pain has its benevolence, that massacre has its mercy. Why is it so ordained that bad should be the raw material of good? Pain is not the less pain because it is useful; murder is not the less murder because it is conducive to development. There is blood upon the hand still, and all the perfumes of Arabia will not sweeten it." Professor Huxley speaks in a strain equally pessimistic, and concludes that, "since thousands of times in a minute, were our ears sharp enough, we should hear sighs and groans of pain like those heard by Dante at the gate of hell, the world cannot be governed by what we call benevolence."

Well, in this fierce struggle for existence only a few survive; and those that survive are the ones that were, for some reason or other, the best fitted to contend with their adversaries. In the case of animals those that could get food where others starved, or that were fleetest of foot or wing, or possessed most cunning, or greatest strength, lived, while the rest came to a violent or untimely end.

Thus far Darwinism is all plain sailing. No one disputes the rapid multiplication of the individuals of a species, or the struggle for existence that is going on day by day.

It is the next step which presents the difficulty. Why are some more fitted to survive than others? According to Darwin it is a mere matter of chance. The offspring vary, and are constantly varying, in one direction and another, from the parents. They vary also not in one organ only, but in all. Some are lighter in colour; some darker. Some have longer or shorter feet; some have a longer beak or sharper talons. Well, this variation enables some to survive while others perish, in any given environment. Those that survive breed, and transmit the characteristics which secured their survival, in a more marked degree, to some of their offspring. Those that inherit these characteristics transmit them to the next generation in a still more marked degree, till, finally, a new species grows out of the old one. In other words, Nature does exactly what man does by artificial selection. A botanist observes, some fine morning, a "sport" in his geranium. That is a branch or shoot with markings quite distinct from the parent. He cuts it off and roots it, and propagates from it by cuttings. If it tries to sport back to its original kind, he destroys the sports. In the course of time its markings have become fixed. It is a new species or variety, and he throws it on the market, as a novelty, under the attractive name of *Madam Pollux* or *Thunder Cloud*. He may do the same thing from seed. Or a pigeon fancier observes that two of his young pigeons have peculiar plumage on their necks. He separates them from the rest, breeds from them, separates again the young that have the same characteristics, in perhaps a more marked degree, until he has inaugurated a new species of "ruffs." Thus all fancy varieties of pigeons have been produced from the common slate-coloured parent stock. It is the same way with dogs. The bull dog and the grey-hound, the Willoughby pug and the Skye terrier came all from the wild dog.

Now, Nature does according to her own methods what man does according to his. The way in which Nature is supposed, according to the Darwinian theory, to accomplish her work is most interesting; and is best explained by one or two of the illustrations with which Mr. Wallace's book abounds.

In the island of Madeira are found insects, in many respects resembling those on the mainland, but they have either lost their wings altogether or have them so short as to be useless for flight. This is supposed to have come about in the following way. The first insects which reached the island were the same as those on the mainland. But the fertile portion of the island lies on the coast, which, like most oceanic islands, is subject to gales. Year by year, those members of the species which had long wings and ventured from the land were swept out to sea and lost. Only the short winged ones remained. They propagated their kind. Any of their offspring that had sufficient length of wing to fly shared the fate of their kindred, while only those who were too weak to fly survived. Thus the wings of succeeding generations grew smaller and smaller, until a new species was, by the process of natural selection, developed.

Another excellent illustration is furnished by the European grouse. In England this bird remains brown or red all the year, but in northern Europe it turns white in winter. The supposition is that, during the glacial period, the English grouse became white also in the winter. The colour was useful to it, and helped it to escape the observation of its foes. When the climate of the British Isles became mild, and there was no snow to signify, white became a disadvantage to the species. Against the red heather the bird was a good mark for its enemies and easily destroyed. The whitest birds, therefore, would perish. Those individuals that varied so far from the parents as to be less white than their brothers and sisters, survived. They in turn bred, and some of their offspring turned even less white in winter than their parents. They survived; their brothers and sisters were killed. Thus in course of generations was developed a species of grouse that, with the sound common sense that has always distin-

guished the inhabitants of the "tight little island," despised continental fashions in dress. They wisely concluded that they would wear the same colours all the year round.

These illustrations are, we imagine, quite sufficient to explain what is meant by "Natural Selection."

This very plausible and interesting theory has been met by naturalists with a host of objections, and one of the commendable features of Mr. Wallace's work is his apparent fair, candid and careful statement of conflicting views and difficulties. To these objections he has given reasonable if not altogether satisfactory answers. We cannot attempt, however, in this short article, which is intended to be little more than a notice of the book, to enter into this part of the subject. We would only again warmly commend the work itself to all who wish to keep pace with the intellectual movements of their age. The facts in natural history accumulated by Charles Darwin and his disciples are intensely interesting, whether we accept the conclusions which have been drawn from them or not.

And now, having grasped the meaning of natural selection, it will not be difficult to explain how Darwin uses it to account for the origin of man. According to him, each species was not formed by a distinct act of creation. One was evolved from the other, the higher from the lower, by a process of variation and natural selection. In the same way the *species* grew into *genera*. Starting, therefore, from the lowest known form of organic life, which he calls protoplasm, there has been a slow but constant evolution upwards. This has acted through untold ages, until it reached the anthropoid ape, and from the anthropoid ape grew into man.

One fine morning (date not given) the promising son of an anthropoid ape, somewhere on the borders of the table-land of Asia, found he varied from his dear mother to such an extent that he could stand upright. It so happened that as his big toe developed and enabled him to brace himself in an upright posture, there took place a corresponding development in the brain. He was more intelligent than his brothers, and, perceiving that he was a superior ape, at once gave himself airs. He determined that it would not do for him to associate with such low people any longer, even if they were relations. Next day he cut them. One of his big brothers, who, if he couldn't stand upright (not having big toe enough) was stronger (more after the build of Sullivan), resented the insult and gave him a good sound drubbing, with a thick piece of bamboo cane.

He deserted, therefore, all his relations who evidently were not able to appreciate his society. He left them clinging to the limbs of the forest and pelting each other with cocoanuts, and marched off to the plain country, which his intelligence enabled him to see was a more suitable place to dwell. Here he erected a sort of mud hut—half dwelling, half fort—and made a rude hatchet with a flint stone. When his relations attacked him, by means of his improved armament he sent them off howling to the woods again. They were afraid of him after this and thought it better to leave him alone.

This primitive man felt lonely, and, one day, meeting the daughter of a respectable anthropoid ape, whose big toe and brain had developed in a similar way to his own, and who was taking a quiet walk, with a palm leaf for a sunshade, he was much impressed. Having ascertained that she was not so nearly related to him as to be on the table of prohibited degrees, he proposed and was accepted. As no missionaries had yet reached the country, they were married according to the Scotch rite. The wedding, of course, was a very quiet affair, and did not even get a notice in *Saturday Night*, for as the relations on either side did not belong to their set, they could not possibly be invited. There were no presents, except a handsome necklet of shells given by the groom, such as are now sometimes found in the mounds of the Stone Period.

Thus protoplasm became man, and from this primitive man and his fair bride the process of evolution went on, still moving upward, to Homer, Virgil, Shakespeare, Milton, Newton, La Place, and the host of intellectual beings that distinguish the present brilliant age.

Now, in the foregoing we have introduced the element of humour for the sake of throwing life into a rather dry subject, but the statement is substantially correct. In all essential particulars we have simply followed the account of the matter as given by Mr. Wallace. As far as the evolution of man's physical organization is concerned, Wallace and Darwin are agreed. But Darwin does not stop here. He accounts for the conscience and mind of man in the same way. His conscience grew out of his social life. Those actions which were beneficial to the community or tribe naturally were approved. Thus they went into the category of right actions. Those that were injurious to the community came in for reprobation, and became classed as wrong. Every selfish act would be injurious to the rest, would be condemned by general sentiment, and would naturally be avoided by everyone who wished to be well thought of.

Darwin, moreover, is a perfect materialist. Not only is he unconscious of a personal intelligence directing the operations of nature, but he is unconscious of spirit apart from matter. A blind chemical force evolved protoplasm to that condition when it manifested its first cell tissue, and became the basis of all animal life. A blind force propelled it onward and upward. Chance only determined the variation in the individuals of a species; and chance again, under the name of environment, decided which should survive and which should perish. After all these ages of development there is nothing to look forward to but

a time when the sun shall lose his heat, and all animal life be destroyed. No wonder this is called the Gospel of Despair!

Surely it is a hard creed! You might as well tell us that the wonderful and complicated machinery in a modern cloth mill, which we can trace back type after type, or invention after invention, to the spinning jenny, was evolved from it by a blind force, that the engine clashed on, and there grew out this marvellously intricate mechanism without the presence of a guiding and directing mind. Scientists, who are unable to accept the miraculous element in the Gospel history, seem to have no difficulty about accepting theories that demand, not the exercise of a reasonable faith, but that of an almost superstitious credulity.

And here Mr. Wallace comes in with his own modification of Darwinism. The disciple differs from the master in a very important particular. While accepting Darwin's view of the physical nature of man, he declares that his moral and spiritual nature could not have been evolved from matter or by natural selection. He recognizes a spiritual as well as a material universe, and seems to suppose that, from time to time, there has been an infusion of spiritual life into matter, for he says:—

"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, when the earliest vegetable cell, or the living protoplasm out of which it arose, first appeared. It is often imputed to a mere increase of complexity of chemical compounds; but increase of complexity with consequent instability, even if we admit that it may have produced protoplasm as a chemical compound, could certainly not have produced *living* protoplasm—protoplasm which has the power of growth and of reproduction, and of that continuous process of development which has resulted in the marvellous variety and complex organization of the whole vegetable kingdom.

"The next stage is still more marvellous, still more completely beyond all possibility of explanation by matter, its laws and forces. It is the introduction of sensation or consciousness, constituting the fundamental distinction between the animal and vegetable kingdom.

"The third stage is, as we have seen, the existence in man of his most characteristic and noblest faculties, those which raise him furthest above the brutes and open up possibilities of almost indefinite advancement. These faculties could not possibly have been developed by means of the same laws which have determined the progressive development of the organic world in general, and also of man's physical organism.

"Those who admit my 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. They will also be relieved from the crushing mental burden 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 far 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.'

"As contrasted with this hopeless and soul-deadening belief, 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.

"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; and we may confidently believe with our greatest living poet,

"That life is not as idle ore,
But iron dug from central gloom,
And heated hot with burning fears,
And dipt in baths of hissing tears,
And battered with the shocks of doom
To shape and use."

This certainly is a step upwards. It is an evolution from the low materialistic creed of Darwin to something nearer the beauty and dignity of the Christian faith, and leads us to hope for still better things to come. Perhaps the next disciple and interpreter of Darwin will see a step further than a spiritual universe and spiritual force infused into the life of man, at different epochs of his existence. He may be able to see that there are facts just as real as material phenomena, which can be accounted for in no other way than by the existence of a personal God, all-powerful and ever present, directing and controlling the material and spiritual world; and that there are other facts in the life of man, during the last eighteen centuries, which cannot be explained, except by the truth of Bethlehem and Calvary, Easter and Pentecost.

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