REVIEW.

A STORY OF EVOLUTION.

The name of Alfred Russel Wallace will always be remembered in the history of science, owing to his association with the chief incident in the world's history during the second half of the nineteen century. It is an interesting fact that the theory of natural selection was invented by one man almost at the same time, but that it should have occurred in the case of a generalization which has so profoundly affected the course of thought as the Darwinian hypothesis, cannot fail to strike the imagination of any one who realizes that the theory was not invented by one man at all. After all, it is the things of the mind that count, and it is easier to imagine the twentieth century without electricity than without the theory of evolution.

Mr. Wallace, already a voluminous writer, has recently added to his long range of his volumes twelve, Life: A Record of Events and Opinions. This book exceeds in bulk any of his previous productions. It would be ungracious to grumble too much at their size, for their chapters are so well arranged, the reader is supplied with so many signposts and warning boards, that it is easy to skip and the judicious will find them a good many of the earlier chapters of the first volume and not a few of the later chapters in the second. For on many subjects Mr. Wallace is an authority. He is anti-vaccination, anti-State endowment of education, anti-land and anti-class. To compensate he is pro-philanthropy and pro-phenomenology; as capital, as large a debt of fancies and fallacies as it is possible to float with. But none can help admiring and respecting him, not merely because it is obvious that he quite honestly believes in the validity of the evidence by which he has been deluded, but because as soon as he begins to think and write about his own subject he becomes forcible, convincing, and lucid. Early in life he grasped a great principle, and it has been a sure guide to his footsteps through the labyrinth in which so many systematists have lost their way. It is a real intellect, and not merely because it is obvious that he quite honestly believes in the things of the mind that count, and it is different to imagine the twentieth century without electricity than without the theory of evolution.

The book, as we have hinted, is most terribly spun out, and a keen sense of humour might have saved us many weary pages. It is difficult, too, to feel much interest in Mr. Wallace's conjectures as to his ancestry, in the fortunates of his father, or in his own school days.

After leaving school, Mr. Wallace worked with an elder brother as a land surveyor, and the many opportunities of leisure that this calling afforded him in various parts of England and South Wales seem to have confirmed a disposition to take an interest of any of natural history which he had still earlier in life. He had a short experience as a schoolmaster, he resolved to make a venture as a collector, and, having arranged with Mr. S. Stevens, an enthusiastic student of British coleoptera and lepidoptera, to act as his agent, he set sail for the Amazon in April, 1848, in company with Mr. Bates, who spent many years there. Mr. Wallace has recorded his experiences in a fascinating volume, Naturalist on the Amazons.

Mr. Wallace spent four years on the Amazon, the Rio Negro, and their tributaries, and sent home many collections which made his name known to entomologists and naturalists. He had the remarkable good fortune to lose the whole of the private collection he had formed owing to the destruction by fire when at sea of the ship on which he was returning home. He spent nearly two years at home reviewing his collections, and in the papers he wrote upon them gave him considerable recognition. Early in 1854, encouraged and assisted by Sir Roderick Murchison, he went to the East, and spent the next eight years in the Malay Archipelago, visiting Borneo, the Celebes, the Moluccas, and other islands. It was this experience which enabled him to write his Work on Life, and perhaps the most important of his contributions to science.

Before this he had read The Vestiges of Creation, a work which produced a great effect on his mind, as on that of many thoughtful students of Nature at that time. It is, of course, well known that the theory of natural selection occurred to Wallace independently, but it may be interesting to quote the account he gives here of how this hypothesis first presented itself to him as the true explanation of a problem which had been long present to his mind:

"During the time I was suffering from a sharp attack of intermittent fever, and every day during the cold and succeeding hot fits had to lie down for several hours, during which time I had nothing to do but to think over any subjects then particularly interesting me. One day some-thing occurred to me that I have not the least idea of the source of, or the method of transmission of the ideas. I considered the idea of the destruction of species by 'survival of the fittest' to be a suitable hypothesis. The idea was in my mind for many weeks, and it was at first a most novel one. The difficulties of the theory were at first overwhelming, and it was only by placing it in one of the most suggestive forms that I could persuade myself that it was a true explanation."
originality of Wallace, and Wallace never ceased to praise the fullness and completeness of Darwin's demonstration. Writing to a friend in 1860, after receiving a copy of the Origin of Species, he says: "I have read it through five or six times, each time with increasing admiration. It will live as long as the Principia of Newton. It shows that Nature is, as I before remarked to you, a study that yields to none in grandeur and immensity..." The most intricate effects of the law of gravitation, the mutual disturbances of all the bodies of the solar system, are simplicity itself compared with the intricate relations and complicated struggle which have determined what forms of life shall exist and in what proportions. Mr. Darwin has given the world a new science, and his name should, in my opinion, stand above that of every philosopher of ancient or modern times. The force of admiration can no further go!" Again, writing to Mr. Bates in the same year, he said: "I know not how, or to whom, to express fully my admiration of Darwin's book. To am it would seem flattery, to others self-praise; but I do honestly believe that, with however much patience I had worked and experimented on the subject, I could never have approached the completeness of his book, its vast accumulation of evidence, its overwhelming argument, and its admirable tone and spirit. I really feel thankful that it has not been left to me to give the theory to the world. Mr. Darwin has created a new science and a new philosophy, and I believe that never..." On returning to England in 1862, Wallace was sought out by Darwin, and friendly relations were maintained ever afterwards, although Wallace subsequently differed from Darwin on certain points. These were, as summarized by Mr. Wallace himself: First, with regard to the origin of man as an intellectual and moral being, Wallace holding that there is a difference in kind, intellectually and morally, between man and other animals, and that while his body was undoubtedly developed by the continuous modification of some ancestral animal form, some different agency analogous to that which first produced organic life and then originated consciousness came into play in order to develop the higher Intellectual and spiritual nature of man. The second point was that Wallace did not accept that part of Darwin's argument for sexual selection which rested on the choice by the female of more musical or more ornamental male birds. The third point had reference to the distribution of arctic plants in the southern hemisphere and on isolated mountain tops within the tropics. Darwin's suggested explanation of the distribution was that it was due to a cooling of the tropical lowlands, during the glacial period, to such an extent as to allow north temperate and arctic plants to spread across the continents to the southern hemisphere, and, as the cold passed away, to ascend to the summits of isolated tropical mountains. Wallace held, from his study of the floras of oceanic islands, that the greater part of their flora was derived by aerial transmission of seeds either by birds or by gales, and extended this view to the transmission along mountain ranges. The fourth point was that Wallace was led to reject Darwin's theory of pangenesis and the transmission of acquired characters; in this he followed the general trend of modern opinion, which has been influenced by the views advanced by Dr. Weismann to reject the hypothesis that acquired characteristics can be transmitted.