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[p. 8]

‘A Great Biologist. The Life Work of Russel Wallace.’

By the death of Dr. Wallace, O.M., F.R.S., announced by cablegram in Saturday’s “West Australian,” the scientific world loses one of its most distinguished and honourable veterans. Alfred Russel Wallace was born on January 8, 1823. His father was ‘of Scottish descent, and believed—on somewhat vague grounds—that he sprang from the stock of the famous Sir William Wallace. The Wallaces had settled, during the 18th century, at Hanworth, in Middlesex, where the first of them seems to have kept an inn. Dr. Wallace’s father was an attorney who never practised, having sufficient private means to be independent of his profession. He dabbled in literature, muddled away his estate, and passed the latter years of his life in rural seclusion, supported by the labour of his children. Alfred was his seventh¹ child, and was born at Usk, in Monmouthshire, where he imbibed his earliest taste for natural history. At the age of four he removed with his family to Hertford, where he was educated at a second-rate country school. More important than anything which he learnt there was the fact that his father became librarian to a fairly good town library, where young Wallace spent most of his leisure time, squatting in a quiet corner, and browsing among the standard literature of the eighteenth century. At the age of 14 he left school and was sent to London, to lodge with his elder brother John, then apprenticed to a builder in the Hampstead-road. Though he only spent a few months here, they had a great influence on his character. His brother spent most of his evenings at a “Hall of Science” in Tottenham Court-road, which was a fore-runner of the later Mechanics’ Institutes, or club for advanced thinkers among workmen. Its habits were largely under the influence of Robert Dale Owen,² the well-known pioneer of Socialism and labour co-operation, and it was at this period that Wallace acquired that interest in land nationalisation and other similar movements.

It is, however, as a biologist and a supporter of

THE EVOLUTIONARY DOCTRINE

that Wallace is best known. The central incident in his life and the most enduring basis of his fame was his independent discovery of the part played by natural selection in the origin and development of natural species, which entitles his name to be perpetually coupled with that of Charles Darwin. In the first half of the nineteenth century natural science had no place in popular education, and young Wallace had to train himself for the researches which were to bring him fame and a moderate share of fortune. The first step in this direction was taken in the summer of 1837, when his brother William—14 years his senior—took him to learn his business of land-surveying. William Wallace was then engaged on surveys in Bedfordshire, and took the boy of 14 with him to stick in pegs, hold the measuring rod, and generally make himself useful whilst he saw how the work was done. During the next seven years the brothers rambled over a great part of southern England and Wales, engaged in survey work. This kept them much in the open air, and compelled them to study the various aspects of the earth’s surface. Most surveyors are practical geologists, and young Wallace found plenty of material for the scientific tastes which were innate in his mind. He learnt the use of surveying and simple astronomical instruments, and in the course of making surveys for the railways which were then beginning to spring up all over the country he gained

a fair acquaintance with the different geological formations of which the earth's crust is composed. "But what occupied me chiefly," he wrote in after years, "and became more and more the solace and delight of my lonely rambles among the moors and mountains, was my first introduction to the variety, the beauty, and the mystery of Nature as manifested in the vegetable kingdom." The chance remark of a friend gave him a desire to understand something about wild flowers, which was partly satisfied by one of the shilling books published by the Society for the Diffusion of Useful Knowledge. With the aid of this little volume and much field work, he made himself a good practical botanist. His brother thought that this occupation, to which the boy gave all his leisure, was rather a waste of time, but did nothing to discourage it. Its importance was revealed later.

THE AMAZON EXPEDITION.

At the age of 21 Wallace left the surveying business, in which there was little doing, and became an usher in a school at Leicester. Here he first became interested in those psychological inquiries which afterwards made him a convinced spiritualist; and here he made the acquaintance of the famous naturalist and charming writer, Henry Walter Bates, afterwards known as the author of one of the most delightful books of travel in our language. Bates was a great entomologist, and his example and enthusiasm led Wallace, who had hitherto contented himself with botany, to undertake the collection of butterflies and beetles. Before very long it became clear to both the friends that England did not afford sufficient scope for their inquiries into the marvels of nature. They decided to undertake a voyage to some tropical country, in the hope of paying expenses by the sale of collections, and of doing something at the same time to extend scientific knowledge of tropical life—an ambition which they very thoroughly carried out. In 1848 they sailed for Para in order to explore the valley of the Amazon, to which their attention had been directed by the publication in 1847 of Edwards' "Voyage up the Amazon." They were abroad for four years,³ and their adventures and experiences gave rise to two books of first-rate importance—Bates' "Naturalist on the River Amazons" (1863) and Wallace's "Narrative of Travels on the Amazon and Rio Negro" (1853). The latter book, although only about 500 copies were sold in ten years, introduced its author to the society of naturalists on his return to London, and remains a valuable contribution to the natural history of the district with which it deals. After about a year, Wallace and Bates had separated and chosen different regions for their exploration. Wallace had sent home large and valuable collections, the sale of which defrayed his expenses and left a modest competence over and above, even though his last and most extensive cargo was burnt at sea. After a brief stay in London, where he enlarged his knowledge of biology and came under the formative influence of Darwin and Huxley,⁴ Wallace again turned his face to the seductive East. This time he determined to explore the Malayan Archipelago, which then afforded practically untrodden ground for the naturalist. It was during this second journey that he hit upon the great discovery of his life.

HIS MALAY RESEARCHES.

Early in 1854 Wallace set sail for Singapore, and the next eight years he spent in wandering through the Malay Archipelago, studying attentively the rich and wonderful forms of life which he found there, and meditating on the problems raised by their existence and distribution. His expenses were amply paid by the collections which he periodically sent home for sale, and he acquired a mass of material which he afterwards gave to the world in a series of valuable and highly important books, beginning with his narrative of travel, "The Malay Archipelago," in 1869 and continued in his works on "Tropical Nature"

(1878), "The Geographical Distribution of Animals" (1876), and "Island Life" (1880). But all these contributions to biology pale in importance in comparison with the great discovery which was published during his absence from England, with such results that he returned in 1862, to find his name famous throughout the scientific world, in a place of "high collateral glory" beside the still greater name of Darwin. No man can wander among the rich exotic forms of life in the Amazon Valley or the Malay Archipelago without being led to speculate on the fundamental question, how they came into being and acquired their singular characteristics. Darwin, with characteristic patience, spent 20 years in elaborating the theory which had flashed across his mind after reading Malthus' "Essay on Population." Wallace hit upon practically the same idea during an attack of fever which kept him idle at Ternate in 1858. During this enforced rest his mind ran freely on the origin of species, which was then the burning question of biology. One day something reminded him of Malthus' "Essay," which he had read many years before. Malthus deals chiefly with the checks of increase—disease, accidents, war and famine—which keep down population among primitive races of mankind.

SURVIVAL OF THE FITTEST.

"It then occurred to me," wrote Wallace, "that these causes or their equivalents are continually acting in the case of animals also; and as animals usually breed much more rapidly than does mankind, the destruction every year from these causes must be enormous to keep down the numbers of each species, since they evidently do not increase regularly from year to year... Vaguely thinking over the enormous and constant destruction which this implied, it occurred to me to ask the question, Why do some die and some live? And the answer was clearly, that on the whole the best fitted live... Then it suddenly flashed upon me that this self-acting process would necessarily improve the race, because in every generation the inferior would inevitably be killed off and the superior remain—that is, the fittest would survive. Then at once I seemed to see the whole effect of this, that when changes of land and sea, or of climate, or of food supply, or of enemies occurred—and we know that such changes have always been taking place—and considering the amount of individual variation that my experience as a collector had shown me to exist, then it followed that all the changes necessary for the adaptation of the species to the changing conditions would be brought about; and as great changes in the environment are always slow, there would be ample time for the change to be effected by the survival of the best fitted in every generation. In this way every part of an animal's organisation could be modified exactly as required, and in the very process of this modification the unmodified would die out, and thus the definite characters and the clear isolation of each new species would be explained."

This, of course, was the essential theory of the origin of species by natural selection. Wallace expanded it into a paper fit to be read before the Linnean Society, and sent it to Darwin, with whom he had been in correspondence on these topics. Darwin with his usual magnanimity at first intended to hold back his own researches, but Hooker and Lyell dissuaded him from this Quixotic course, and a summary of his own work was read along with Wallace's paper. It is one of Wallace's claims to true greatness of mind that he met Darwin in his own spirit, and recognised both in public and private that the priority of the great discovery was due to the author of "the origin of species." But there is no doubt that his own share in the discovery was quite independent of Darwin's work, and his name will always be associated with that of Darwin in the most truly epoch-making research of our times. In later years he diverged somewhat from Darwin's theory, and in his book on "Darwinism" (1889) he presented a lucid and admirable popular exposition of the theory of organic evolution as it then appeared to his mind.

HIS LITERARY WORK.

The last 40 years of Wallace's life were devoted mainly to literary work and lecturing, and do not call for detailed description. He made more than one successful tour in the United States, where his account of Darwinism and allied topics was always heard with satisfaction. In the books already mentioned he summed up the results of his years of tropical travel, and added much to biological knowledge—especially in regard to the distribution of animals and the interesting subject of protective colouring, or mimicry. He made excursions into other fields, where he hardly showed to the same advantage. Possessed of the true missionary spirit, he was never happier than when maintaining an unpopular dogma, in speech or writing. His book on “Miracles and Modern Spiritualism” (1874, republished with additions in 1901) proclaimed him a believer in the claims of the most advanced “mediums.” In “Land Nationalisation” (1882) he urged a vigorous plea for the State ownership of all land. He also wrote against vaccination, and involved himself in an unfortunate quarrel with the egregious people who maintain that the earth is flat. In “The Wonderful Century” (1899) he gave a popular account of the advances of the nineteenth century in natural knowledge and in control over natural forces, and in “Man's Place in Nature” (1903) he attempted to give scientific reasons for a new edition of the old belief that the earth was the real centre of the universe. None of these divagations can be said to have added to his reputation, which still rests upon his co-discovery with Darwin of the theory of natural selection, and upon the series of works in which he discussed the biological consequences of that discovery. In 1905 he published an interesting though somewhat too lengthy autobiography.

Dr. Wallace was married in 1866 to Miss Annie Mitten, of Hurstpierpoint, by whom he had several children.

¹ [Editor's note: Actually, his eighth.]

² [Editor's note: The writer has mistaken Robert Dale Owen (1801-1877) for his father, Robert Owen (1771-1858).]

³ [Editor's note: Wallace stayed for four years but Bates remained in South America for eleven.]

⁴ [Editor's note: There is no evidence for there having been any considerable “formative influence” from Darwin and Huxley at this time.]

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The Alfred Russel Wallace Page, Charles H. Smith, 2014.