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with some of its Applications

Alfred Russel Wallace

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Alfred Russel Wallace (1823–1913) is regarded as the co-discoverer with Darwin of the theory of evolution. It was an essay which Wallace sent in 1858 to Darwin (whom he greatly admired and to whom he dedicated his most famous book, *The Malay Archipelago*) which impelled Darwin to publish an article on his own long-pondered theory simultaneously with that of Wallace. As a travelling naturalist and collector in the Far East and South America, Wallace already inclined towards the Lamarckian theory of transmutation of species, and his own researches convinced him of the reality of evolution. On the publication of *On the Origin of Species*, Wallace became one of its most prominent advocates, and *Darwinism*, published in 1889, supports the theory and counters many of the arguments put forward by scientists and others who opposed it.

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Darwinism

*An Exposition of the Theory of Natural
Selection, with Some of its Applications*

ALFRED RUSSEL WALLACE



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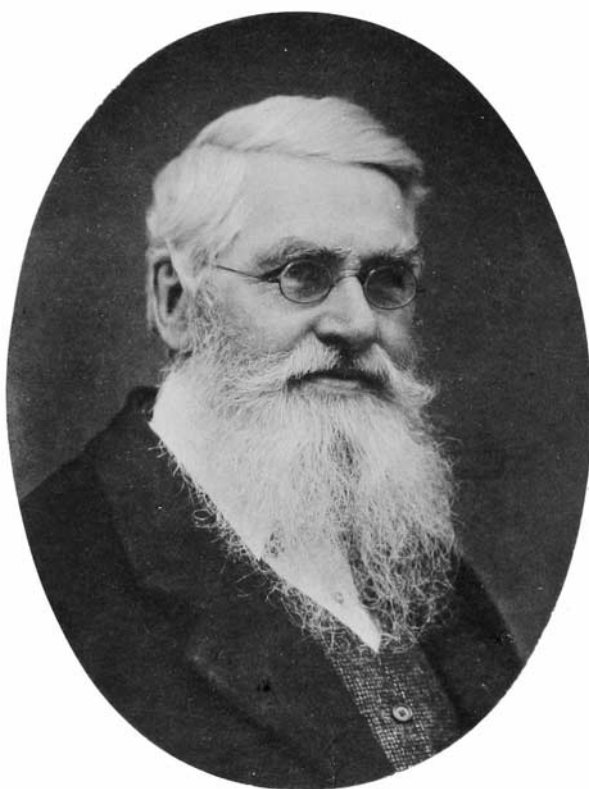
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DARWINISM

AN EXPOSITION OF THE

THEORY OF NATURAL SELECTION

WITH SOME OF ITS APPLICATIONS

BY

ALFRED RUSSEL WALLACE

LL.D., F.L.S., ETC.

WITH MAP AND ILLUSTRATIONS

London

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PREFACE

THE present work treats the problem of the Origin of Species on the same general lines as were adopted by Darwin ; but from the standpoint reached after nearly thirty years of discussion, with an abundance of new facts and the advocacy of many new or old theories.

While not attempting to deal, even in outline, with the vast subject of evolution in general, an endeavour has been made to give such an account of the theory of Natural Selection as may enable any intelligent reader to obtain a clear conception of Darwin's work, and to understand something of the power and range of his great principle.

Darwin wrote for a generation which had not accepted evolution, and which poured contempt on those who upheld the derivation of species from species by any natural law of descent. He did his work so well that "descent with modification" is now universally accepted as the order of nature in the organic world ; and the rising generation of naturalists can hardly realise the novelty of this idea, or that their fathers considered it a scientific heresy to be condemned rather than seriously discussed.

The objections now made to Darwin's theory apply, solely, to the particular means by which the change of species has been brought about, not to the fact of that change. The objectors seek to minimise the agency of natural selection and to subordinate it to laws of variation, of use and disuse, of intelligence, and of heredity. These views and objections

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are urged with much force and more confidence, and for the most part by the modern school of laboratory naturalists, to whom the peculiarities and distinctions of species, as such, their distribution and their affinities, have little interest as compared with the problems of histology and embryology, of physiology and morphology. Their work in these departments is of the greatest interest and of the highest importance, but it is not the kind of work which, by itself, enables one to form a sound judgment on the questions involved in the action of the law of natural selection. These rest mainly on the external and vital relations of species to species in a state of nature—on what has been well termed by Semper the “physiology of organisms,” rather than on the anatomy or physiology of organs.

It has always been considered a weakness in Darwin’s work that he based his theory, primarily, on the evidence of variation in domesticated animals and cultivated plants. I have endeavoured to secure a firm foundation for the theory in the variations of organisms in a state of nature; and as the exact amount and precise character of these variations is of paramount importance in the numerous problems that arise when we apply the theory to explain the facts of nature, I have endeavoured, by means of a series of diagrams, to exhibit to the eye the actual variations as they are found to exist in a sufficient number of species. By doing this, not only does the reader obtain a better and more precise idea of variation than can be given by any number of tabular statements or cases of extreme individual variation, but we obtain a basis of fact by which to test the statements and objections usually put forth on the subject of specific variability; and it will be found that, throughout the work, I have frequently to appeal to these diagrams and the facts they illustrate, just as Darwin was accustomed to appeal to the facts of variation among dogs and pigeons.

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I have also made what appears to me an important change in the arrangement of the subject. Instead of treating first the comparatively difficult and unfamiliar details of variation, I commence with the Struggle for Existence, which is really the fundamental phenomenon on which natural selection depends, while the particular facts which illustrate it are comparatively familiar and very interesting. It has the further advantage that, after discussing variation and the effects of artificial selection, we proceed at once to explain how natural selection acts.

Among the subjects of novelty or interest discussed in this volume, and which have important bearings on the theory of natural selection, are : (1) A proof that all *specific* characters are (or once have been) either useful in themselves or correlated with useful characters (Chap. VI); (2) a proof that natural selection can, in certain cases, increase the sterility of crosses (Chap. VII); (3) a fuller discussion of the colour relations of animals, with additional facts and arguments on the origin of sexual differences of colour (Chaps. VIII-X); (4) an attempted solution of the difficulty presented by the occurrence of both very simple and very complex modes of securing the cross-fertilisation of plants (Chap. XI); (5) some fresh facts and arguments on the wind-carriage of seeds, and its bearing on the wide dispersal of many arctic and alpine plants (Chap. XII); (6) some new illustrations of the non-heredity of acquired characters, and a proof that the effects of use and disuse, even if inherited, must be overpowered by natural selection (Chap. XIV); and (7) a new argument as to the nature and origin of the moral and intellectual faculties of man (Chap. XV).

Although I maintain, and even enforce, my differences from some of Darwin's views, my whole work tends forcibly to illustrate the overwhelming importance of Natural Selection over all other agencies in the production of new species.

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I thus take up Darwin's earlier position, from which he somewhat receded in the later editions of his works, on account of criticisms and objections which I have endeavoured to show are unsound. Even in rejecting that phase of sexual selection depending on female choice, I insist on the greater efficacy of natural selection. This is pre-eminently the Darwinian doctrine, and I therefore claim for my book the position of being the advocate of pure Darwinism.

I wish to express my obligation to Mr. Francis Darwin for lending me some of his father's unused notes, and to many other friends for facts or information, which have, I believe, been acknowledged either in the text or footnotes. Mr. James Sime has kindly read over the proofs and given me many useful suggestions; and I have to thank Professor Meldola, Mr. Hemsley, and Mr. E. B. Poulton for valuable notes or corrections in the later chapters in which their special subjects are touched upon.

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