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ALFRED RUSSEL WALLACE: THEISTIC DARWINIAN

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Alfred Russel Wallace and Charles Robert Darwin are generally regarded as the co-founders of the theory of evolution by natural selection. They make an interesting comparison. Darwin (b. 1809) came of a good family and had a first-class education at Shrewsbury, Edinburgh, and Cambridge, first in medicine and then in classics with a view to entering the Church. Wallace (b. 1823) had few such advantages. His unpractical father could not afford to give him as much schooling as he would have liked to. At 14, Wallace left school and assisted his elder brother William in surveying, which gave him an interest in geology; to this he added studies in astronomy, agriculture, and particularly botany. He also became an enthusiastic admirer of Robert Owen. In 1844 he became a master at the collegiate school at Leicester, where he read widely and investigated hypnotism and phrenology. Here also he made the acquaintance of the naturalist H.E. Bates, who interested him in entomology. In 1846, William died and Alfred took over his surveying business, which flourished in the railway boom and enabled him to save some money. In 1848 he set sail with Bates for an expedition up the Amazon, planning to defray the expenses by the sale of specimens on his return home. In 1852 he settled in London to work out and describe his collections and attend scientific meetings. In 1854 he set out by himself to study the zoology of the Malay archipelago, principally in the islands of Borneo and Sarawak.

In 1855, Wallace wrote his first article on the theory of evolution — an essay *On the Law which has regulated the Introduction of New Species* — in which he argued that every new species has come into existence by evolution out of a previous one, but without assigning any cause for this process. In 1858, during an attack of malaria in Sarawak, reflecting on the course of evolution in the light of Malthus's *Essay on Population* (which had much impressed him when he read it some thirteen years earlier), he hit on the explanation: the changes in species were due to the action of natural selection preserving those heritable variations which were advantageous to the species in the struggle for existence and weeding out the disadvantageous. He immediately wrote a paper setting out the case for this view and posted it to Darwin, asking him to consult the geologist Sir Charles Lyell with a view to its publication.

This put Darwin in a difficulty, because he had come to the identical conclusion many years before and had put down his thoughts in writing in 1842, but never submitted anything for publication. Perhaps he shrank from the odium of advocating a materialist and non-theistic view of creation, just as David Hume had shrank from publishing his sceptical *Dialogues on Natural Religion*.¹ If Wallace's paper were published, he would get the credit for discovering what Darwin had discovered long before. Darwin put the problem to Lyell and the botanist Hooker, and they agreed that the right course was for Darwin to write a parallel paper, to be presented simultaneously with Wallace's to the Linnaean Society. This was done in 1858. Little notice was taken of the new

theory until the following year when Darwin, yielding to the pressure of his friends, published what he regarded as a preliminary treatise *On the origin of species by means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life*.

Wallace returned in 1862 and settled for a time in London. He devoted the rest of his long life (he survived until 1913) to the care or disposal of his huge collection of specimens, and to writing and lecturing. He married in 1866, and had a son and a daughter. He wrote various articles and books describing his zoological discoveries, of which the most important was a book published in 1869 under the title *The Malay Archipelago*. He also wrote on the theory of evolution, on astronomy, on social questions, and an autobiography. He was a convinced Spiritualist, an anti-vaccinationist, and in theory but not in practice a vegetarian. He was concerned over soil erosion, hated the rigid class structure of British society, and was an extreme advocate of land nationalization, becoming President of the newly-formed Land Nationalization Society in 1881.

There was never any animosity between Wallace and Darwin; they regarded each other as supporters, not rivals — but on some matters of theory they diverged. For instance, Wallace could not accept Darwin's view that the colour differences between the sexes in birds were the result of 'sexual selection,' because among birds the male usually selects the female, not vice-versa; he held that female birds are dull-coloured because it is they that sit on the eggs, and they have to be inconspicuous to avoid falling easy victims to predators.

Wallace's views on birds' nests were argued in detail in two articles published in 1867 and 1868 and reprinted in 1870 in a collection of essays entitled *Contributions to the theory of Natural Selection*. In one of these articles — his contribution to the Linnaean Society in 1858 — he repudiated Lamarck's theory of inheritance of acquired characters as not in accordance with the facts. Darwin on the other hand in *The Origin of Species* had thought it necessary to bring this in as a subsidiary cause of evolution because he did not think natural selection by itself was a sufficient explanation. Darwin's exact words² were:

I am convinced that natural selection has been the main but not exclusive means of modification.

And in a subsequent edition he gave his view that modification of species

had been effected chiefly through the natural selection of numerous successive, slight, favourable variations; aided in an important manner by the inherited effects of the use and disuse of parts, and in an unimportant manner, that is in relation to adaptive structures, whether past or present, by the direct action of external conditions, and by variations which seem to us in our ignorance to arise spontaneously.

In this same book Wallace included an article on the races of man, first published in 1864, in which he argued that human moral and intellectual progress could not be due to natural selection, because "it is the mediocre, if not the low, both as regards morality and intelligence,

who succeed best in life and multiply fastest." This position was amplified in a fresh chapter added in the second edition in 1871, in which he contended that while natural selection can explain everything in the vegetable and lower animal kingdoms, it cannot explain the development of the human race or the origin of sensation or consciousness. Neanderthal man had a far bigger cranium than he needed, for a brain only slightly larger than an ape's would have sufficed for his primitive mode of life; why was this development, unnecessary at that time, not weeded out by natural selection? Why did early man lose his hair, which was useful in keeping out the cold and throwing off the rain? Why did man lose his prehensile big toe, or develop a hand, with independent fingers, which was capable of much more than he needed it for at the early stages of his development? How could the human voice become capable of speech and musical singing long before these accomplishments became actual? How could man develop a capacity for abstract thought, which he did not at first need, or attach a feeling of sanctity to truthfulness? Just as edible grains and domestic animals could only be evolved not by unconscious natural selection but by deliberate human breeding, so the evolution of the human race could have been produced only by the working of a higher intelligence, whether we identify this with the supreme God or with some other controlling power.

It is the same with consciousness. Huxley had said that "our thoughts are the expressions of molecular changes in that matter of life which is the source of our other vital phenomena." But how can this be so? How can unconscious molecules, however complex their organisation, become conscious? "There is no escape from this dilemma — either all matter is conscious³, or consciousness is something distinct from matter, and in the latter case its presence in material forms is a proof of the existence of conscious beings, outside of, and independent of, what we term matter." This, contended Wallace, does not disprove Natural Selection: it only means that Natural Selection requires supplementation.

Wallace returned to this question in 1890 (Darwin had died in 1882) in a book entitled *Darwinism: an exposition of the theory of Natural Selection, with some of its applications*. This book is an able exposition of the Darwinian theory, with replies to objections that had been made to it in the thirty years since *The Origin of Species* first appeared. Wallace professes in this book to expound the pure Darwinism from which Darwin somewhat receded in later editions of his works, and the first fourteen chapters show no difference from Darwin, except on the question of sex-differences in birds. In the final and fifteenth chapter Wallace repeats his contention that Natural Selection cannot account for the evolution of man. As a fact, the human race must have evolved in the Miocene period out of primitive apes; but the facts do not sustain natural selection as the sole cause. Many human faculties, e.g. the mathematical and the artistic and musical, were of no use to primitive man and in their developed forms are still confined to a minority of the species. There are in fact "at least three stages in the development of the organic world when some new cause or power must necessarily have come into action" —

1 the change from inorganic to organic matter (mere

complexity of chemical composition cannot account for the new powers of the first vegetable cell);

2 "the introduction of sensation or consciousness, constituting the fundamental distinction between the animal and vegetable kingdoms" and

3 the existence in man of his noblest faculties. Therefore there must be an unseen universe — "a world of spirit, to which the world of matter is altogether subordinate." We reach this result by scientific reasoning: thus Darwinism "does not oppose, but lends support to, a belief in the spiritual nature of man."

In 1904 Wallace placed the coping-stone on these thoughts by a book entitled *Man's Place in the Universe*, an astronomical account of the universe, leading to the conclusion that our solar system is in the centre of the universe, and that it is extremely improbable that anywhere else could there be a coincidence of the conditions necessary to produce or sustain life, let alone evolve a race of intelligent creatures. It seems to follow therefore that the universe was created for the very purpose of producing the human race on the planet earth. If it be asked, then, why so many useless stars and nebulae and meteors were created, merely that one planet in one solar system should house our vegetable and animal kingdoms, it can be replied that this is nature's method. Our planet teems with quantities of species — there are at least 100,000 species of beetle — although only a few would have been necessary for the evolution of man. Many species produce vast quantities of seeds or eggs, few of which will ever germinate and contribute to the continuance of the species. So by analogy there is no reason why the whole universe should not have been designed for the purpose of producing the human race.

Had Wallace been a better theologian, it might have occurred to him that God could have had other purposes in the creation of the universe than the mere evolution of humanity; and he might have thought it odd that God should have left evolution to the sole influence of natural selection until he suddenly intervened to create man. Indeed if he had not been so determined to support Darwin in giving the maximum possible scope to natural selection, he might have applied to some of the earlier steps in the evolutionary process the considerations which led him to regard natural selection as an incomplete explanation of the evolution of humanity. He might have asked himself, for instance, how it was possible for the dolphin's dorsal fin to evolve through gradual enlargement over a long period of time, since in its early stages the incipient fin would have served no practical purpose and would have been weeded out by natural selection; to account for the survival of the fin on Darwinian principles it would be necessary to suppose that by a heritable mutation a large number of dolphins in the same area simultaneously grew a dorsal fin large enough to be of practical advantage. Similarly, the wing feathers of evolving birds would have been weeded out as useless until they were large and numerous enough to sustain flight. Some other factor would have been necessary to make flight possible.

This account may therefore properly conclude with a return to the comparison between Wallace and Dar-

win. Darwin, starting from a Christian base, was driven by the logic of his scientific theory to deny any kind of divine or supernatural action as a causative factor in evolution, even though he did not regard natural selection as a complete explanation. Wallace, starting from an irreligious background, was driven by his interpretation of the evidence to postulate supernatural interventions to account for life, consciousness and humanity, even though he regarded natural selection as a complete explanation of everything else. At this distance in time, ought we to regard Wallace as mistaken and dismiss his invocations of the supernatural along with his enthusiasms for phrenology, spiritualism, anti-vaccinationism and land nationalization? Or shall we allow that he had a wider grasp of the mystery of the universe than was attained by the limited mind of Darwin?

Wallace has been largely forgotten in the present century. Although he came to believe in God, the so-called Creationists have no use for him because he forcibly refuted the idea that new species did not evolve from old but were each specially created *de novo*. On the other hand, although he strongly supported most of Darwin's contentions, he is rejected by the neo-Darwinists because he could not explain the whole process by natural causes. If there is a third option between Darwinism and Creationism (which modern publicists seem unwilling to allow), perhaps Wallace's writings indicate some of the lines this could take, even if not all his particular arguments can command assent at the present day.

Footnotes

1 Cf. Stephen Jay Gould, *Ever Since Darwin* (1978), pp.21-27.

2 *Origin of Species*, Chapter XV

3. This was the alternative chosen by Teilhard de Chardin.