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An Ugly Baby

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Footsteps in the Forest: Alfred Russel Wallace in the Amazon by Sandra Knapp
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Alfred Russel Wallace was 35 and stricken with malaria in what is now Indonesia when, in 1858, he wrote a letter to Charles Darwin in England that would send Darwin into a tailspin. In a feverish ‘flash of light’, Wallace had independently stumbled on the theory of natural selection. Darwin had been working on the idea for some twenty years, but had not yet published. ‘So all my originality,’ he wrote, ‘whatever it may amount to, will be smashed.’

History, however, has been kinder to Darwin than he feared, and it is Wallace who has been relegated to the footnotes. In fact, what was in many ways Wallace’s finest hour may paradoxically have contributed to his neglect by posterity. It has caused him to be forever bracketed with Darwin, but not as an equal; he has been condemned always to play Watson to Darwin’s Holmes. Even Wallace’s biographers have been sucked into the vortex – a 1966 biography was called *Darwin’s Moon*.

Despite the obvious overlaps between their careers – formative years spent immersed in the natural history of distant regions, later years in the upper echelons of Victorian science – Darwin and Wallace were very different men. Drawing parallels between them does Wallace an injustice because it neglects his many non-scientific dimensions.

Born in Usk, Gwent, in 1823 into a hard-up middle-class family, Wallace left school at 13 and ended up working with his brother as a surveyor. A slump in the surveying business, however, found him teaching in Leicester, where he met another budding naturalist, H.W. Bates (who also became a prominent tropical biologist). In 1848, aged 25 and 23 respectively, Wallace and Bates travelled together to the Amazon: Wallace’s version of Darwin’s *Beagle* voyage was underway, but in very different circumstances. Darwin travelled as Captain FitzRoy’s ‘gentleman companion’; Wallace and Bates travelled as professional collectors, their trip underwritten by the sale of specimens to museums and to wealthy amateurs intent on improving their ‘cabinets’.

Wallace's four years in the Amazon are chronicled by Sandra Knapp in *Footsteps in the Forest*, with excerpts from Wallace's own account set alongside commentary based largely on her experiences as a field botanist in South America. Here we see him developing his distinctive professional characteristics. The man who would subsequently make major contributions to biogeography – the study of the geographical distribution of living things – was already complaining about other naturalists' lack of precision: 'Spix, in his work on the monkeys of Brazil, frequently gives, "banks of the River Amazon" as a locality, not being aware that the species found on one side do not very often occur on the other.'

The trip ended in disaster. Wallace's ship home caught fire in mid-Atlantic, and he lost £500 worth of precious specimens, including the live birds and monkeys he had carefully tended for so long. As the lifeboats hovered close to the wreck in the forlorn hope that the fire would attract rescuers, Wallace watched events turn even more poignant – several of the animals, he said, 'had retreated to the bowsprit out of reach of the flames, appearing to wonder what was going on.' Forced to spend the next ten days in a lifeboat, Wallace was lucky to escape with his life. Because of the inevitable chaos of abandoning ship – he reports that the cook had to be 'sent for corks, to plug the holes in the bottoms of the boats' – he managed to save only one small box of possessions. In it, however, were his pencil sketches of palm trees and fish, and these are lovingly reproduced in Knapp's book.

'Fifty times since I left Pará [Belém] have I vowed,' Wallace wrote four days after his return to England, 'if I reached England, never to trust myself more on the ocean.' Yet two years later he was in South-East Asia, at the start of an eight-year journey of collecting and exploration that would yield an extraordinary 126,000 biological specimens, including a thousand species new to science, and involve some 14,000 miles of travel. This time he even managed to get some living creatures home, though not without the occasional scare. In the Mediterranean his ship was too clean to support a population of cockroaches – food for his two birds of paradise – but a visit to a Maltese bakery supplied meals enough for the rest of the voyage.

It was from the Moluccan Islands that Wallace sent the letter that so disturbed Darwin, and it was there, too, that he carried out his most celebrated biogeographic work, recognising that the animals and plants of South-East Asia are split between Asian and Australian types. The Western islands (Borneo to Bali) are biologically Asian, while the Eastern ones (Sulawesi to Lombok) are biologically Australian. The divide, which represents in part the ghost of continental drift past, is known as 'Wallace's Line'. His work on these journeys catapulted him into the top tier of scientists of his day, but this, once again, was no grand enterprise: he was simply a professional collector making a living. Most of the time he worked with the assistance only of Ali, a local boy.

Wallace's journey yielded more than science. His account of it in *The Malay Archipelago*

ranks high among travel books. As one reads him on the Aru Islands, south of New Guinea, for example, it's easy to forget that he was there on business, collecting specimens to pay his bills.

> I had the good fortune to capture one of the most magnificent insects the world contains, the great bird-wing butterfly (*Ornithoptera poseidon*). I trembled with excitement as I saw it coming majestically toward me, and could hardly believe I had really succeeded in my stroke till I had taken it out the net and was gazing, lost in admiration, at the velvet black and brilliant green of its wings, seven inches across, its golden body, and crimson breast. It is true I had seen similar insects in cabinets, at home, but it is quite another thing to capture such one's self – to feel it struggling between one's fingers, and to gaze upon its fresh and living beauty, a bright gem shining out amid the silent gloom of a dark and tangled forest. The village of Dobbo held that evening at least one contented man.

Wallace returned to England in 1862, three years after the publication of the *Origin of Species*, to find himself something of a celebrity, but an impoverished one. He applied for a succession of jobs which he didn't get, and money remained a headache for many years, though his problems were eased by the award in 1881 – largely through Darwin's offices – of a Civil List pension of £200. While Darwin's investments permitted him to live the life of a gentleman scientist at Down, Wallace was perennially scrabbling for cash. For 26 years, he marked Civil Service exam papers – as menial a task as academic life has to offer.

It is the difference in their responses to the fame afforded by their discovery of natural selection that most obviously sets Darwin and Wallace apart. Darwin knuckled down. In the 23 years between the publication of the *Origin* and his death, he published ten books, each one building in some way on the platform provided by the *Origin*. His often overlooked final book, published in 1881, *The Formation of Vegetable Mould, through the Action of Worms, with Observations on their Habits*, is in fact the ultimate illustration of Darwin's strategy. His theory of evolution is based on extrapolation: he borrowed the uniformitarianism of the geologists to argue that processes that have minor effects on a day-to-day basis can have major consequences over long periods of time. Thus the subtle action of natural selection may be barely discernible from one generation to the next, but give it a few thousand generations and significant changes will occur. So, too, with the impact of earthworms on landscapes: only over long periods will their soil-churning activities be noticeable. Darwin stuck to his theme to the very end.

Wallace, on the other hand, went wild. Between his return from South-East Asia and his death in 1913, he cranked out some 665 publications, 20 of them books. He remained

astonishingly productive as a scientist, with *The Geographical Distribution of Animals* (1876) and *Darwinism* (1889) among his important contributions, but his scientific reputation served also as a springboard for wide-ranging forays beyond science. Plunging into a second career as a socially engaged public intellectual, he wrote on socialism, in particular the nationalisation of land; on pacifism; on spiritualism (which he first espoused publicly in 1866, having earlier disavowed orthodox religion); on smallpox vaccination (he was opposed: his splendidly titled, *Vaccination a delusion; its penal enforcement a crime* was published in 1898); on the possibility of intelligent non-human life in the universe (whose existence he doubted); on votes for women (which he favoured).

Paradoxically, despite his role in one of history's most important intellectual revolutions, Darwin avoided confrontation. It took Wallace's letter to break his twenty-year habit of procrastination, so unwilling was he to deal with the controversy he knew his ideas would ignite. Wallace, in contrast, took up causes with abandon, impelled either by his profound humanitarianism, or by outrage at a perceived transgression against scientific truth. His choice of causes was sometimes ill-advised, but always well-intentioned. For example, he responded to the challenge of a Mr Hampden, a committed flat-earther, who wagered £500 that nobody could prove the surface of a body of water to be convex. Drawing on his surveying skills, Wallace duly supplied an excellent proof, and was, for his pains, pursued in the courts for many years afterwards by Mr Hampden, who remained unimpressed – the earth, after all, is flat so it's impossible to prove it otherwise. Wallace had not picked his adversary well, as his young wife found out when she received a letter from Mr Hampden: 'Madam – If your infernal thief of a husband is brought home some day on a hurdle, with every bone in his head smashed to pulp, you will know the reason.'

Wallace's work is consistently cogent and logical. Even his writings on some of his more eccentric causes bear these hallmarks. In defending spiritualism – a position that inevitably attracted the scorn of the scientific establishment – he disputed Hume's definition of a miracle as a 'violation of the laws of nature'. Wallace pointed out that such a definition presupposes knowledge of those laws – knowledge that Wallace the scientist knew to be incomplete at best. And on inspection, what with hindsight appears to be the most quixotic of all his enthusiasms, his campaign against smallpox vaccination, is also surprisingly rational. He objected to the statistics used by the medical profession to justify its implementation, and revealed many instances in which they were manipulated to enhance the establishment's claims. For example, one report exaggerated the number of smallpox cases nationwide prior to vaccination by multiplying the number in London by 12 on the premise that approximately one 12th of the population lived in the capital. Such an extrapolation was unwarranted because the dense and dirty (i.e. disease-fostering) living conditions in London did not obtain elsewhere. Wallace may have been wrong to oppose vaccination, but his critique of the

evidence in its favour was sound.

Darwin and Wallace disagreed on a number of issues, most notably the evolution of humans. Darwin, Wallace wrote in *My Life* (1905), believed that

> there was no difference in *kind* between man's nature and animal nature, but only one of degree. My view, on the other hand, was, and is, that there is a difference in kind, intellectually and morally, between man and animals; and 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.

Wallace has as a result traditionally been derided both as a wimp – for his failure to apply natural selection consistently – and as a flake for his invocation of some kind of ill-defined teleological agent. This is unfair: his position was surprisingly enlightened.

His embrace of spiritualism seems to have influenced his views on human evolution. However, another, more scientific factor may also have contributed: he was much better informed and less racist than his more consistently materialistic colleagues. T.H. Huxley, an abolitionist and as good a liberal as any, wrote: 'The higher places in the hierarchy of civilisation will assuredly not be within the reach of our dusky cousins.' Wallace, who by virtue of his extended solo expeditions had much more first-hand experience of the 'savage races' than Darwin (who invariably travelled in the company of other Europeans) was less of a white supremacist: 'The more I see of uncivilised people, the better I think of human nature on the whole, and the essential differences between civilised and savage man seem to disappear.' In fact, Wallace believed that non-Europeans were endowed with minds every bit as capable of those of Europeans, and he was troubled by the implicit redundancy: why should people who had never seen a piano, and never would, nevertheless be equipped mentally to play it? In an era when human races were typically regarded as steps en route to evolution's crowning achievement, Caucasians, Wallace, unlike his scientific colleagues, was intimately familiar with the 'lowest' representatives of humanity.

He was also the only one among the prominent evolutionists of his day to have carried out field work on the 'highest' representatives of the non-human world, the Great Apes. He was an authority on the orang-utan, and even tried for several months to hand-rear an orphan – 'I am afraid you would call it an ugly baby,' he wrote to his mother, 'for it has dark brown skin and red hair.' With his first hand knowledge of the 'lowest' humans and 'highest' animals, he could conceptualise the gulf between humans and other animals, and it may be that his recognition of its vastness contributed to his refusal to leave the divine out of evolution – to

have bridged the ape-human gap was, for him, asking too much of natural selection. Racism, on the other hand, made the consistent application of natural selection easier because it insinuated that the 'savage races' are anyway close to apes, implicitly narrowing the divide.

Whatever the reasons for his stance, Wallace's insights into human evolution remain valuable.

> From the moment when the first skin was used as a covering, when the first rude spear was formed to assist in the chase, the first seed sown or shoot planted, a grand revolution was effected in nature, a revolution which in all the previous ages of the earth's history had had no parallel, for a being had arisen who was no longer necessarily subject to change with the changing universe.

Thus Man 'is, indeed, a being apart, since he is not influenced by the great laws which irresistibly modify all other organic beings'. If only sociobiologists – or 'evolutionary psychologists' as they call themselves these days – would heed Wallace. Maybe they would then be less inclined to their view of a brutish human nature predicated on the primacy of natural selection in determining our actions.

Wallace was a prominent figure at the time of his death, aged 90, in 1913, but his star seems subsequently to have dimmed rapidly. That he was so self-effacing was no doubt a factor. His gentlemanly deference to Darwin is famous: not only did he not complain about Darwin's arrangements for joint publication on natural selection, made without consulting Wallace, but he entitled his major later work on their joint discovery, *Darwinism*. Even his autobiography lacks the self-congratulation characteristic of the genre – it includes, for instance, an account of 'certain marked deficiencies in my mental equipment'.

Despite his best efforts, Wallace is today undergoing a minor renaissance. A project is underway to renovate and protect his neglected grave in Broadstone, Dorset, and the Linnaean Society – at which the Darwin-Wallace joint paper was presented in 1858 – has belatedly commissioned a portrait to hang alongside Darwin's. Knapp's engaging account of Wallace's Amazon period, too, is part of the renaissance, as will be a forthcoming major critical study from Martin Fichman. It's about time. G.K. Chesterton considered him to be one of two candidates for the title of 'most important and significant figure of the 19th century' (the other was Walt Whitman). Chesterton appreciated Wallace's enigmatic mix of materialism and mysticism: Wallace, he wrote, has simultaneously 'been the leader of a revolution and the leader of a counter-revolution'.

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