

# The Wey We Are

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## Remembering a genius who science forgot

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# The Man Science Forgot

He was the classic Victorian polymath – a genius whose scientific legacy is immense. So why has history turned its back on Alfred Russel Wallace

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## Evolutionary theories are like buses.

You wait centuries for someone to overhaul the widespread belief of divine creation - that a higher being created all creatures great and small - and then two come along on the same evening.

This is the story of the two scientists behind those theories of natural selection, whose lives were inextricably linked - even if history remembers otherwise. Fate gave them contrasting fortunes.

The first, of course, was Charles Darwin. The other is a man whose place in natural history is just as important.



Alfred Russel Wallace merits scientific parity with Darwin - but his name is remembered by few, and his role is known by fewer. Had I bet you a tanner you'd never heard of him and won, the note you'd have handed me would have had (until the plastic ones were introduced in 2018) the face of Charles Darwin on it. By rights, it should have been that of Alfred Russel Wallace, the catalyst without whom Darwin would probably have died in obscurity with his scientific legacy much diminished.

How did it come to this? Two eminent British scientists, both with experience of collecting abroad, both with enquiring

minds that looked beyond the widely-held creationist theory, both with an interest in the reasons for biodiversity, and who both reached the same remarkable conclusions that were heard on the same summer evening - 1st July 1858, in Burlington House, just off Piccadilly in London's West End.

The papers were heard by The Linnean Society, an academic group of some of the finest scientific minds of the time and a fertile ground for disseminating such weighty matters. For differing reasons, neither Darwin nor Wallace was present that evening but no matter; the subject was to send shockwaves around the

world. Natural science had shifted into a new universe with the concept that animals might, in the parlance of the time, 'transmute' rather than have been created.

The first shots of this scientific revolution barely hinted at what was to come. The title of neither paper gave overt clues to the subject matter. Darwin's was called *On the Variation of Organic Being in a State of Nature; on the Natural Means of Selection; on the Comparison of Domestic Races and true Species*. The other, by Wallace, was titled *Tendency of Varieties to depart indefinitely from the Original Type*.



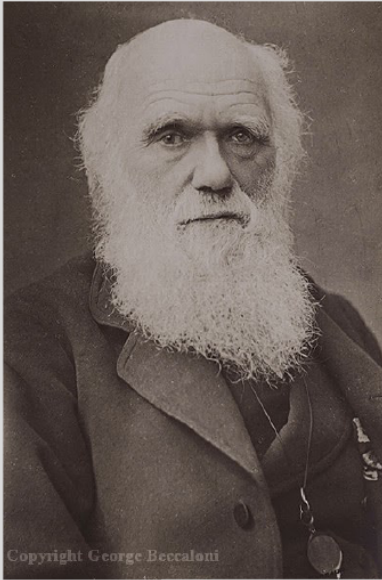
**Two papers, blandly titled but containing revolutionary views on the sensitive subject of creationism. Two scientists who had reached the same radical conclusion but by different routes.**

The Linnean Society ruled that the papers would be read in the alphabetical order of the surnames of their writers. Darwin had first dibs; Wallace was denied his rightful legacy; and the rest is history.

Alfred Russel Wallace was born on 8th January 1823 near Usk, on the English-Welsh border in Monmouthshire. He was the penultimate of 9 children. His family moved to Hertfordshire when he was 5. Details of his early academic career are sketchy but it is known that his schooling came to an abrupt halt at 14 when his family were unable to afford to continue paying for his education.

Instead, he was apprenticed to work with his brother as a surveyor. He spent 6 years doing the latter, travelling the countryside in Wales and the south of England. It's clear that his interest in nature emerged during this time.

In a parallel universe, one could see Wallace as one of us at the Land Registry - as a classic 'plannie'. He had an intuitive gift for mapping. He could see land in different dimensions - he understood how and why the terrain



Charles Darwin, the better-known Evolution theorist

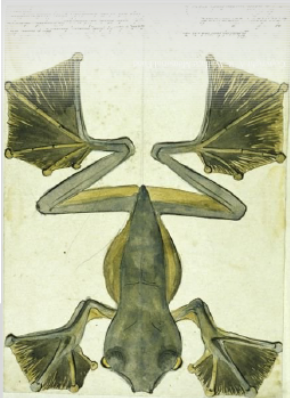
looked the way it did. And, thanks to his apprenticeship, he understood buildings too.

But the settled youth that might have led him down this path evaporated in 1844 when his brother's surveying business ran into financial difficulties, and at the age of 20, he was laid off. The next year found him working as a teacher, and then he resumed his surveying and architectural career with another brother after returning to Wales in 1845.

But it was clear that for all his gifts for mapping and architecture, his first love was nature. He collected insects avidly during his rural surveying trips; and corresponded with entomologists widely. In 1848, he turned his back on surveying, and on Britain, to start a new career as a collector. His first trip abroad was to Brazil.

It ended in disaster. Wallace spent four years traversing the Amazon, collecting specimens, mostly insects, making notes and, along the way, investigating how the diversity of the rainforest around him might have arisen.

To be a naturalist in those days covered a multitude of sins. If you were a collector, it was simple: you collected specimens, preserved and labelled them, and when you arrived home, sold them to private individuals. Victorian England had a mania for order. The world and its contents were categorised, mapped, labelled, catalogued. Our own Land Registry, created in 1862, was as much part of that as was the desire to accumulate rare and exotic insects.



ORNITHOPTERA CROESUS  
Wallace's Golden Birdwing

Golden Birdwing

Source: Minibeast.uk



Some of Wallace's Malay Archipelago subjects: A flying frog from Borneo; the Golden Birdwing butterfly; and orang utans.

But Wallace was more than a collector. To be a scientific naturalist in those times demanded diverse talents. You needed to have an underlying knowledge of the natural world. You had to be able to prepare specimens. Birds and mammals need preserving to retain skeletons, fur or feathers for description once returned to the UK. Insects need protection from the ravages of mould, mites, ants and beetles.

You needed porters, collectors, people who knew how to handle specimens. You needed HR skills; translators; diplomacy; money; patience. Everything required meticulous cataloguing - date, location, time, any other notes of scientific merit. And there were the logistics of transporting your collection, including live specimens that

need feeding, caring, restraining ...

Four years of collecting went up in smoke in August 1852 when the brig Helen, taking Wallace and his specimens back to London from Brazil, caught fire and sank. All that remained of Wallace's time in Amazonia were a few notebooks and sketches, and one live but very stressed parrot.

He lived in London off the insurance from his lost treasures for a couple of years, putting together his next expedition and also writing copiously. In spite of the loss of most of his notes and specimens he still produced a couple of books and several academic papers on his Amazonian travels.

In 1854, aged 31, he embarked on the journey that

would make his reputation. This time, he headed in the other direction - to the East Indies. He was away for eight years, in which time he traversed the myriad islands that now make up Indonesia, Malaysia, Singapore and East Timor.

It was a slow business, necessarily in a world of steam and sail and human labour. He visited dozens of islands, taking extended stays in many, sometimes suffering illness, mishaps, storms and logistical difficulties. He was a painstaking, meticulous and sometimes bloodthirsty collector and curator of specimens, and most of his preserved discoveries still exist more than a century and a half later, in museums around the world. Thousands of the 125,660 specimens he took were new to science.

### **It was during this expedition that Wallace gave serious thought to the question; 'Why?'**

The Far East is a rich and fertile collecting ground. Quite apart from introducing European readers to the behaviour of creatures such as orang utans in the wild for the first time, there was much for

Wallace to ponder. Butterflies, in particular, one of his specialities, proliferate in incredible diversity. The same species exist from island to island, but in races that vary slightly. On islands with a dry

season, the same species might look very different during some parts of the year depending on whether it has to blend in with dry, dead leaves or lush live ones.

**Any collector with a curious mind would deduce that there is no such thing as a species template and Wallace, with his observant eye and his clear understanding of the turbulent geology of the region, saw continuous change as a contributory factor to natural diversity. The germ of an idea began to form in his mind...**

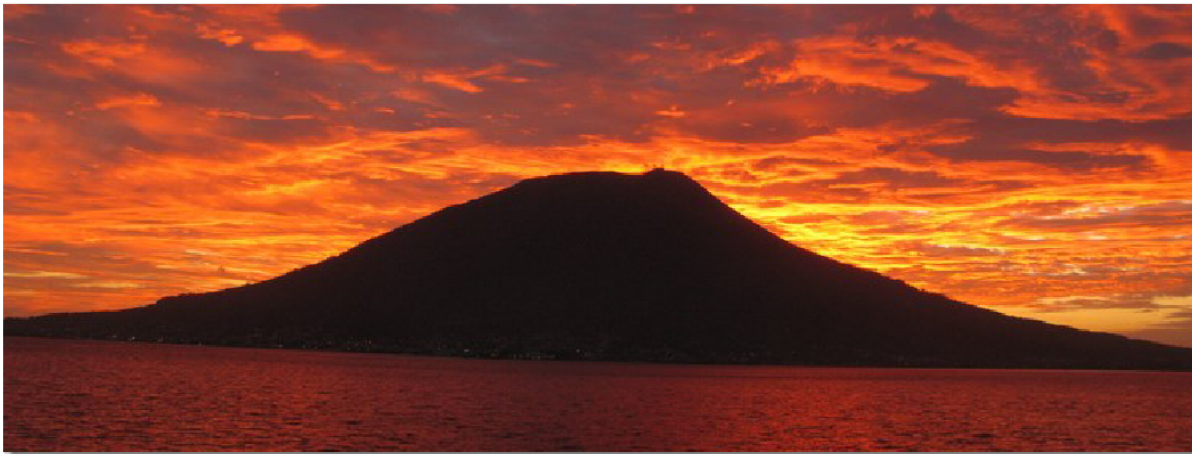
Wallace's eureka moment occurred in early 1858 while he was holed up in Ternate, a volcanic island at the western end of Indonesia's Spice Islands once famous for the production of cloves. He was suffering a bad bout of malaria and with the clarity of mind that the depletion of

body sometimes brings about, he saw the process of natural selection with fever-bright clarity.

As soon as he was strong enough to collect his thoughts he wrote his paper - *On the Tendency of Varieties to Depart Indefinitely From the Original Type* - and in nine

concise pages, managed to encapsulate his theory. But instead of sending the paper for publication in one of the journals he had previously written for, he sent it to Charles Darwin for an opinion. That decision cost him his seat at the top table of natural science.





It is fascinating to speculate on what would have happened had Wallace simply published his paper first. Darwin had done his research some 20 years earlier in South America and the Galapagos Islands and while he had slowly come to his own, similar conclusions about evolution, he was unsure what to do with his life's work. He wavered between publishing his ideas in a monumental tome, and locking the whole lot away for good, not least because he relied in part on the finances of his wife, Emma (daughter of Josiah Wedgwood, the pottery magnate), who was deeply religious.

When it arrived on 18 June 1858, The Ternate Letter, as Wallace's paper became known, galvanised Darwin. At the insistence of two senior members of The Linnean Society, who understood the significance of Wallace's work and how it had basically gazumped Darwin, the latter

dashed off a synopsis of his theory and the two papers were presented at an extraordinary meeting of the Society a fortnight later. Which is when alphabetical order denied Wallace his true place in history.

Neither man was present. Darwin was at the funeral of his youngest son and Wallace, of course, was still in the Far East. Records at the Linnean Society show that after the reading of Darwin's work, the room went completely silent, the unholy conclusions being too novel and ominous.

As the Dorset palaeontologist, Mary Anning, had discovered half a century earlier, British society was still reluctant to challenge the biblical belief that the earth was a few thousand years old. It was only the year after, when Darwin published a more considered work, *Origins of Species* by means of Natural Selection, that science was

able to begin wresting the topic away from the Book of Genesis.

Wallace, meanwhile, had been initially unaware that his paper had been published, and of the furore that followed. When he returned from the Far East in 1862 he seemed to defer to Darwin and the pair began a scientific partnership in which they continued to fine-tune their same-but-different theories.

Wallace was a prolific writer and his illuminating travelogue, *The Malay Archipelago* (which he dedicated to Darwin when it was first published in 1869), is still in print. He showed that with his scientific brilliance came a human ability to communicate the emotions of his discoveries. His description of the capture of the first Golden Birdwing, a large and vividly beautiful butterfly, on the island of Bachan, illustrates this.

*I found it to be ... a perfectly new and most magnificent species, and one of the most gorgeously colored butterflies in the world. Fine specimens of the male are more than seven inches across the wings, which are velvety black and fiery orange. The beauty and brilliancy of this insect are indescribable, and none but a naturalist can understand the intense excitement I experienced when I at length captured it ... My heart began to beat violently, the blood rushed to my head, and I felt much more like fainting than I have done when in apprehension of immediate death. I had a headache the rest of the day, so great was the excitement produced by what will appear to most people a very inadequate cause.*



Wallace's later life was, after his 1858 hiatus, one of ebbs and flows. After he returned to Britain in 1862, he married and settled down to raise a family, thus ending his travelling days. He made a good deal of money from selling his specimens and from his writing - and lost most of it in ill-advised investments. He was so short of funds that in the 1870s, as he entered his 50s, he was reduced to marking government exam papers to earn enough to support his family.

It was only in 1881 that, after constant lobbying from the scientific fraternity, led by Darwin, that his finances stabilised with the award of a government pension of £200



a year for his lifetime contributions to science. It eased his retirement - though Wallace never really retired.

He is pictured, often, as a diffident man, tall at 6ft 1in but with a shy nature. The beard he grew on his Far Eastern travels remained and in his 50s, turned to snowy white which coupled with his spectacles, gave him the look of an avuncular Father Christmas. It was misleading. His mind stayed razor-sharp and as he aged, he turned it to radical social activism.

The issues that Wallace embraced were ahead of their time and very much at odds with the common preoccupations of middle-class Victorian England. They would also strike a chord with many today. His causes included a campaign for protection of the environment, and the creation of parks and greenbelts; he espoused women's rights and Suffrage.

He was a reactionary advocate of land reform, believing that rural land should be requisitioned by the state and leased to people who would make the best use of it to benefit the most people. He deplored militarism, arms races and a criminal justice system that failed to reform prisoners. He was an anti-vaxxer for most of his later years.

For a comprehensive picture of Wallace's life, achievements and writing, see

<http://wallacefund.info/>

His resting place is Dorset. In 1888, he and his wife Annie moved to Parkstone, a suburb of Poole overlooking the harbour and Brownsea Island; but they didn't stay long. Fed up of the building boom around their house which eroded his view, he bought three acres of secluded orchard and heathland in Broadstone with sweeping views of the northern part of Poole Harbour and of the Arne Peninsula.

Reverting back to his youth and training, at the age of 78, he designed and oversaw the building of what proved to be his final home, Old Orchard. From the greenhouse there the grand old man continued his writing, his musings and his collecting, until his death in November 1913 at the age of 90. There was a movement to have him buried at Westminster Abbey but his widow, Annie, was adamant. His wish had been to be interred in the cemetery at Broadstone, and she would see that he had his way.

In this unassuming setting, amid a grove of pines and marked by a petrified tree trunk set on a plinth of limestone from Portland, you will find the grave of one of the greatest scientists Britain has produced. In the tangled grass and trees surrounding the memorial, butterflies flit and bees go about their chores. It is a still, silent place; A good place for reflection.



Old Orchard, Wallace's last home