

Jimmy Doherty in Darwin's Garden

Recreating Darwin's controversial evolution experiments, including seeing how monkeys react to snakes and playing a bassoon to an earthworm.



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Programme running: 3 x 60 mins Production: BBC Series Producer: Andrew Thompson Executive Producer: Marcus Herbert

Charles Darwin returned from his five year expedition aboard *The Beagle* with some revolutionary ideas about the diversity of the world's flora and fauna. However, before he could begin work on one of the most influential scientific publications of all time "On the Origin of Species", Darwin needed to expand his early hunches into a fully formed theory of evolution through a series of ingenious and astonishing experiments.

Jimmy Doherty, farmer and entomologist, follows Darwin's intellectual journey, recreating ground breaking experiments on in-breeding in plants, natural selection, and some quirky tests involving earthworms and music. Filmed in the gardens and greenhouses of Darwin's home in Kent, this series rediscovers the science underpinning evolution.

Dangerous Ideas

His head swimming with the thousands of species he had seen around the world, Darwin began a series of experiments at his home, Down House. He looked at how seeds can travel the world on ocean currents, and confirmed his ideas about diversity by surveying the meadow next to his home. The astonishing range of plants, over 140, gave him confidence in his theory.

The unexpected arrival of a manuscript proposing a similar theory of natural selection by another British scientist, Alfred Wallace, blew away Darwin's doubts, and the race was on for publication.

The Storm Breaks

As "On the Origin of Species" was published in 1859, Darwin continued his experiments, looking for parallels between plant and animal life. We discover why Darwin attempted to chloroform a Venus fly trap and recreate an experiment following the slow movements of climbing plants.

Darwin also expanded his work on reproduction, examining why peacocks had such long and elaborate



tails, and whether plants were able to cross fertilise. The experiments revealed that the offspring of self fertilised plants do not fare so well as those of cross fertilised plants, a discovery that worried Darwin, who had married his first cousin. Yet while Darwin focused on the less controversial plant experiments, the debate beyond his garden about the merits of the theory of evolution clamoured for more information on human evolution.

Of Apes and Men

Having established evolutionary principles with plants, Darwin began work on the controversial subject of human evolution. He demonstrated the similarities between human intelligence and animal intelligence through an experiment in which earthworms were able to pick out leaf shapes from pieces of paper.

He then moved on to parallels with primates, who he argued were humans' closest relation, exploring monkeys' curiosity about their predators and the ability of great apes to recognise themselves in a mirror. His comparisons with his own children revealed much about learning and child development. Finally Darwin was able to conclude that humans had evolved from earlier apes, originating in Africa, a theory confirmed by modern palaeontologists.

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