

CHARLES DARWIN

CHARLES DARWIN WAS BORN IN SHREWSBURY ON 12 FEBRUARY 1809. HIS FATHER, ROBERT, WAS THE TOWN'S LEADING DOCTOR. HIS PATERNAL GRANDFATHER WAS THE PHYSICIAN-PHILOSOPHER ERASMUS DARWIN.

His mother Susanna was the daughter of the master potter Josiah Wedgwood. Erasmus and Josiah had been founding members of the Lunar Society, a gathering of some of the most influential intellectuals and industrialists in Britain in the late eighteenth century.

As a boy, Darwin enjoyed collecting birds' eggs and interesting rocks, fishing, shooting, going for solitary walks, stealing fruit and, according to his autobiography, telling 'deliberate falsehoods... for the sake of causing excitement'. He was taken out of school by his father in June 1825 because of his poor grades and in October was sent to Edinburgh to study medicine. However, Darwin had little interest in the subject; he found the lectures boring and the surgery demonstrations horrific. He was more interested in the study of nature and one of the things he valued most about being in Edinburgh was the time he could spend at the Natural History Museum there.

Darwin abandoned his medical course in April 1827 and the following January took a place at Christ's College, Cambridge with the intention of becoming a clergyman. He wrote in his autobiography: 'During the three years which I spent at Cambridge my time was wasted,

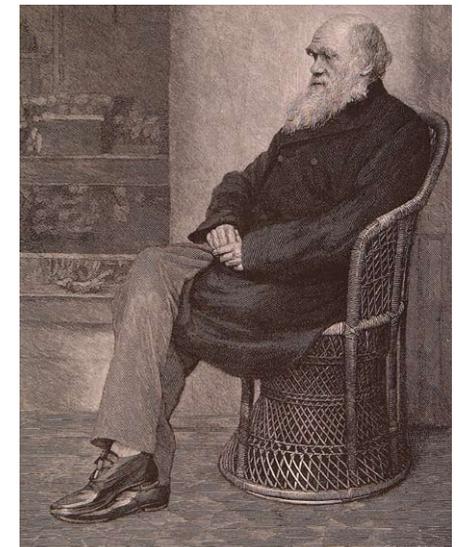
Below: Illustration of crested cormorant on its rocky nest site from John Gould's *Birds of Australia* (1840-1869) (University of Bristol Library, Special Collections). In *On the Origin of Species*, Darwin refers to the variation in inherited nest-building instincts among different species of birds. Gould was an ornithologist and publisher who advised Darwin on the specimens of birds brought back from the *Beagle* voyage, including the famous Galapagos finches, 13 distinct species of which were present on the islands, each best suited to its specific environment.

Below right: Portrait of Charles Darwin at Down House taken from a photograph by his son Leonard c 1880 (University of Bristol Library, Special Collections).

as far as the academical studies were concerned, as completely as at Edinburgh and at school.' He 'got into a sporting set, including some dissipated low-minded young men', collected beetles and was a member of the Glutton Club, which was devoted to eating 'birds and beasts which were before unknown to human palate'. He also attended lectures given by the Rev John Stevens Henslow, Professor of Botany, which reinforced his interest in natural history.

Darwin received his degree in April 1831. Henslow, who had become his mentor, introduced him to the eminent geologist Professor Adam Sedgwick whom Darwin accompanied on a walking tour in North Wales that summer. Darwin had previously attended geology lectures at Edinburgh and had found the subject dull, but now, with Sedgwick's help, he became fascinated by it. His knowledge of geology would later help him develop his theories about the earth and the species that live upon it.

At the end of August Darwin received a letter from Henslow telling him of an offer to join a survey of South America as a volunteer 'gentleman-naturalist'. The survey was being conducted from the ship *HMS Beagle* under the command of Captain Robert FitzRoy. Having overcome his father's opposition – Robert thought his son should be settling down to work at his age, not gallivanting on unpaid voyages – Darwin set sail from Plymouth on 27 December 1831. He did not return to England until October 1836 when the ship docked at





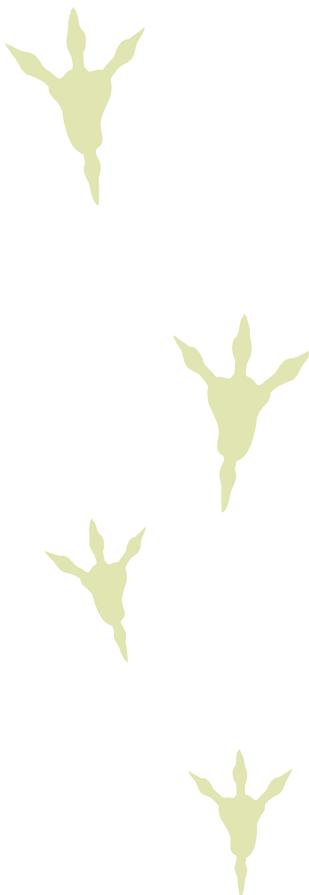
Cow bunting, Plate 99, from John James Audubon's *Birds of America* (1839) (Mitchell Library, Special Collections, Glasgow). In *On the Origin of Species* Darwin refers to the cow bunting – or brown-headed cow bird – and its instinct to lay its eggs in other species nests, an inherited behaviour similar to that of the cuckoo. Audubon's folio is one of the finest examples of natural history illustration ever produced and was an inspiration to Gould.

Falmouth, having circumnavigated the southern hemisphere; Darwin had suffered seasickness throughout much of journey. Darwin would later write:

The voyage of the *Beagle* has been by far the most important event in my life, and has determined my whole career... I have always felt that I owe to the voyage the first real training or education of my mind...

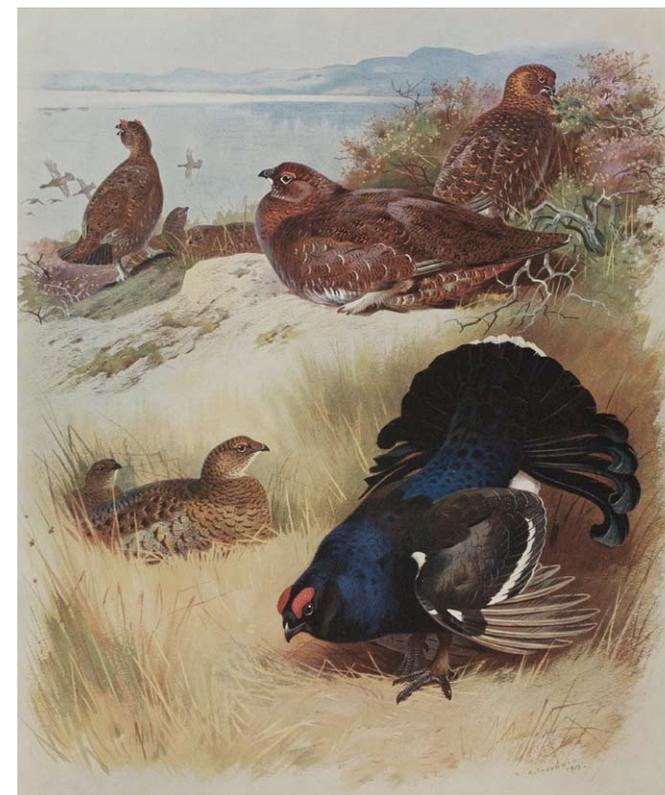
It was during the course of the voyage that Darwin gradually developed an understanding of the processes by which the world was continually changing and how the life forms upon it were likewise continually changing – physically and behaviourally – in order to survive. The processes had been going on for millions of years and would keep unfolding slowly until the end of time. Darwin's understanding was partly based on his comparison of what he had read in other people's books with his own direct observations of the world around him, and partly through the development of ideas of his own.

Darwin termed the mechanism by which living things adapted to the changing environment 'natural selection' – later referred to as 'evolution' – and this knowledge provided the basis for his landmark book *On the Origin of Species* published in 1859. Natural selection refers to the preservation of useful traits through successive generations, for example, a particular shape of bird beak that suits the availability of insects or a particular thickness of animal coat that suits the climate. There is no human or higher power manipulating the outcome. It happens naturally; birds with the right kind of beak or animals with the right kind of fur are more likely to survive, to inter-breed and to pass on their particular genes than others. In the



nineteenth century, it was highly controversial to suggest that species could change without divine intervention: most people believed everything in life was meticulously planned by God. Consequently, for over 20 years Darwin kept his thoughts to himself as he was aware of the harm they might do to his reputation. He wanted to be absolutely sure of his evidence before presenting his case.

In the meantime, Darwin married his first-cousin Emma Wedgwood on 29 January 1839. Their first of ten children, William Erasmus, was born in December. Darwin was not the typical Victorian father, being close to his children and rarely chastising them. His son Francis wrote: 'He kept up his delightful, affectionate manner towards us all his life.' Because of his health problems – partly the result of tropical fevers suffered during the *Beagle* voyage – Darwin became increasingly reclusive. He and his family left the noise and bustle of London in September 1841 to settle into their new country home at Down House in Kent where Darwin remained for the rest of his life.



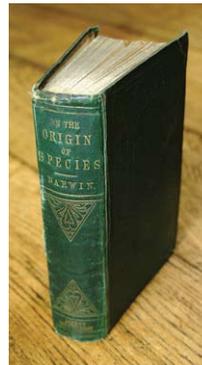
Picture of grouse from A Thorburn's *British Birds* (1916) (Bath in Time – Bath Central Library). In *On the Origin of Species* Darwin writes of how the colour of the grouse, by blending with its environment, helps it to survive. Over long periods of time, red-grouse living in the heather, and the black living in areas of peaty earth, would have fared much better than those of other shades who would have gradually died out.

Darwin was kept busy classifying his collections, exchanging correspondence with colleagues, going for daily contemplative walks, writing books and taking various cures for his ailments. As part of his research into how species might change over time, he became an enthusiastic breeder of pigeons. His son George wrote: 'I remember that from time to time there was a pigeon fancying party; the guests struck me as being rather a queer set.' Darwin became convinced that all varieties of pigeons – wild or domestic – had descended from the rock-pigeon, either through natural or artificial selection. Similarly, he believed that humans and modern-day apes were not different in kind, but only in degree, as they shared a distant, common ancestor.

In April 1856, Darwin invited a small group of friends to Down House for a special meeting in which he put forward his ideas on natural selection. Around this time, the geologist Charles Lyell, another of Darwin's colleagues, recommended that he read a paper on the origins of new species by the naturalist-explorer Alfred Russel Wallace who was on an extensive expedition in the Malay archipelago (this is the same Wallace who is referred to in *The Lost World*). Lyell urged Darwin to write up and publish his own theories on the subject.

Darwin began drafting what was then called 'Species Sketch' and would later become the book *On the Origin of Species*, on 14 May 1856. He corresponded with Wallace, still out in the Far East, and on 18 June 1858 received another of Wallace's papers, this one setting out an outline of the transformation of species based on the principle of natural selection. To prevent Darwin's own work being overtaken by that of Wallace, Lyell and Hooker arranged for a paper jointly credited to 'Messrs C Darwin and A Wallace' to be read at the meeting of the distinguished Linnean Society in London on 1 July. It was entitled 'On the Tendency of Species to Form Varieties; and on the Perpetuation of Varieties and Species by Natural Means of Selection'.

On the Origin of Species was published by John Murray on 22 November and all 1,250 copies sold out that day (the John Murray Archive is in Edinburgh). A second edition quickly went into production. Darwin continued his writing and researches for the remainder of his life, including conducting detailed studies of orchids, climbing plants, variation in domestic animals, the processes of sexual selection, expressions of emotions, insectivorous plants,



First edition of *On the Origin of Species* (University of Bristol Library, Special Collections).

Spotted bower bird from John Gould's *Birds of Australia* (1840-1869) (University of Bristol Library, Special Collections). In *The Descent of Man*, Darwin writes of the bower bird's decorative skills in nest building as an example of how other species, besides humans, have an appreciation of beauty.



and the earth-moving efforts of worms. He also published books on barnacles, coral reefs and volcanic islands.

After a series of seizures, he died on the afternoon of 19 April 1882 at Down House. He had expected to be buried quietly alongside two of his children in the local churchyard but, following the intervention of members of the scientific community, he was given a state funeral with internment at Westminster Abbey on 26 April.

The previous year, Darwin had added a section to his autobiography, which he had written in 1876 as a personal memoir for his children and grandchildren. This included the following words of self reflection:

... my success as a man of science, whatever this may have amounted to, has been determined, as far as I can judge, by complex and diversified mental qualities and conditions. Of these, the most important have been – the love of science – unbounded patience in long reflecting over any subject – industry in observing and collecting facts – and a fair share of invention as well as of common sense. With such moderate abilities as I possess, it is truly surprising that I should have influenced to a considerable extent the belief of scientific men on some important points.