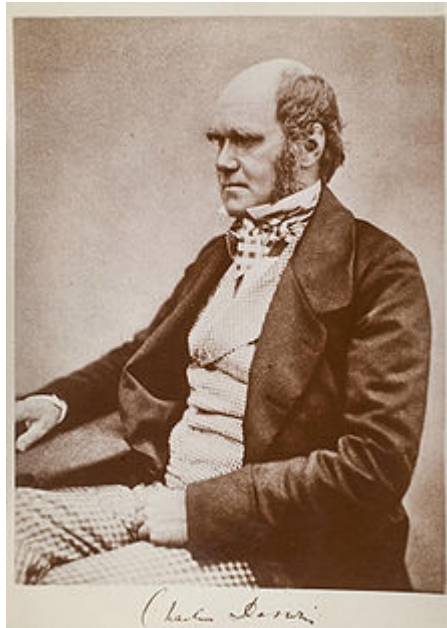


Charles Darwin

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Charles Darwin



Charles Robert Darwin, aged 45 in 1854, by then working towards publication of *[On the Origin of Species](#)*.

Born	12 February 1809 Mount House , Shrewsbury , Shropshire , England
Died	19 April 1882 (aged 73) Down House , Downe , Kent , England
Residence	England
Citizenship	British Citizenship
Nationality	British
Ethnicity	English
Fields	Naturalist
Institutions	Royal Geographical Society
Alma mater	University of Edinburgh University of Cambridge
Academic advisors	John Stevens Henslow Adam Sedgwick

Known for	<i>The Voyage of the Beagle</i> <i>On The Origin of Species</i> Natural selection
Influences	Charles Lyell Joseph Dalton Hooker
Influenced	Thomas Henry Huxley George John Romanes Ernst Mayr
Notable awards	Royal Medal (1853) Wollaston Medal (1859) Copley Medal (1864)
Religious stance	Church of England , though Unitarian family background, Agnostic after 1851.

Signature



Notes: He was a grandson of [Erasmus Darwin](#) and a grandson of [Josiah Wedgwood](#), and married his cousin [Emma Wedgwood](#).

Charles Robert Darwin [FRS](#) (12 February 1809 – 19 April 1882) was an [English naturalist](#)^[1] who realised that all [species](#) of life have [evolved](#) over time from [common ancestors](#), and published compelling supporting evidence of this in his 1859 book [*On the Origin of Species*](#) in which he presented his [scientific theory](#) that this branching pattern of evolution resulted from a process that he called [natural selection](#).^{[1][2]} The [fact that evolution occurs](#) became accepted by the [scientific community](#) and much of the general public in his lifetime,^[3] but it was not until the emergence of the [modern evolutionary synthesis](#) from the 1930s to the 1950s that a broad consensus developed that natural selection was the basic mechanism of evolution.^[4] In modified form, Darwin's scientific discovery is the unifying theory of the [life sciences](#), explaining the [diversity of life](#).^{[5][6]}

Darwin's early interest in nature led him to neglect his course in [medicine](#) at [Edinburgh University](#) and instead help to investigate [marine invertebrates](#), then the [University of Cambridge](#) encouraged a passion for [natural science](#).^[7] His [five-year voyage](#) on [HMS Beagle](#) established him as an eminent [geologist](#) whose observations and theories supported [Charles Lyell](#)'s [uniformitarian](#) ideas, and publication of his [journal of the voyage](#) made him famous as a popular author.^[8]

Puzzled by the geographical distribution of wildlife and [fossils](#) he collected on the voyage, Darwin investigated the [transmutation of species](#)

and conceived his theory of natural selection in 1838.^[9] Although he discussed his ideas with several naturalists, he needed time for extensive research and his geological work had priority.^[10] He was writing up his theory in 1858 when [Alfred Russel Wallace](#) sent him an essay which described the same idea, prompting immediate joint publication of [both of their theories](#).^[11] Darwin's work established evolutionary descent with modification as the dominant scientific explanation of diversification in nature.^[3] In 1871 he examined [human evolution](#) and [sexual selection](#) in *[The Descent of Man, and Selection in Relation to Sex](#)*, followed by *[The Expression of the Emotions in Man and Animals](#)*. His research on plants was published in a series of books, and in his final book, he examined [earthworms](#) and their effect on soil.^[12]

In recognition of Darwin's pre-eminence as a scientist, he was one of only five 19th-century UK non-royal personages to be honoured by a [state funeral](#),^[13] and was buried in [Westminster Abbey](#), close to [John Herschel](#) and [Isaac Newton](#).^[14]

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Life of Darwin

Childhood and education

See also: [Charles Darwin's education](#) and [Darwin-Wedgwood family](#)



The seven-year-old Charles Darwin in 1816.

Charles Robert Darwin was born in [Shrewsbury, Shropshire](#), England on 12 February 1809 at his family home, [the Mount](#).^[15] He was the fifth of six children of wealthy society doctor and financier [Robert Darwin](#), and [Susannah Darwin](#) (*née* Wedgwood). He was the grandson of [Erasmus Darwin](#) on his father's side, and of [Josiah Wedgwood](#) on his mother's side. Both families were largely [Unitarian](#), though the Wedgwoods were adopting [Anglicanism](#). Robert Darwin, himself quietly a [freethinker](#), had baby Charles [baptised](#) in the Anglican Church, but Charles and his siblings attended the Unitarian chapel with their mother. The eight year old Charles already had a taste for natural history and collecting when he joined the day school run by its preacher in 1817. That July, his mother died. From September 1818, he joined his older brother [Erasmus](#) attending the nearby Anglican [Shrewsbury School](#) as a [boarder](#).^[16]

Darwin spent the summer of 1825 as an apprentice doctor, helping his father treat the poor of Shropshire, before going to the [University of Edinburgh](#) with his brother Erasmus in October 1825. He found lectures dull and [surgery](#) distressing, so neglected his medical studies. He learned [taxidermy](#) from [John Edmonstone](#), a freed black slave who had accompanied [Charles Waterton](#) in the [South American rainforest](#), and often sat with this "very pleasant and intelligent man".^[17]

In Darwin's second year he joined the [Plinian Society](#), a student [natural history](#) group whose debates strayed into [radical materialism](#). He assisted [Robert Edmund Grant](#)'s investigations of the anatomy and life cycle of

[marine invertebrates](#) in the [Firth of Forth](#), and in March 1827 presented at the Plinian his own discovery that black spores found in [oyster](#) shells were the eggs of a skate [leech](#). One day, Grant praised [Lamarck's evolutionary ideas](#). Darwin was astonished, but had recently read the similar ideas of his grandfather Erasmus and remained indifferent.^[18] Darwin was rather bored by [Robert Jameson's](#) natural history course which covered [geology](#) including the debate between [Neptunism](#) and [Plutonism](#). He learned [classification](#) of plants, and assisted with work on the collections of the [University Museum](#), one of the largest museums in Europe at the time.^[19]

This neglect of medical studies annoyed his father, who shrewdly sent him to [Christ's College, Cambridge](#), for a [Bachelor of Arts](#) degree as the first step towards becoming an Anglican [parson](#).^[20] Darwin began there in January 1828, but preferred [riding](#) and [shooting](#) to studying. His cousin [William Darwin Fox](#) introduced him to the popular craze for [beetle](#) collecting which he pursued zealously, getting some of his finds published in [Stevens' Illustrations of British entomology](#). He became a close friend and follower of botany professor [John Stevens Henslow](#) and met other leading naturalists who saw scientific work as religious [natural theology](#), becoming known to these [dons](#) as "the man who walks with Henslow". When exams drew near, Darwin focused on his studies and was delighted by the language and logic of [William Paley's Evidences of Christianity](#).^[21] In his final examination in January 1831 Darwin did well, coming tenth out of a pass list of 178.^[22]

Darwin had to stay at Cambridge until June. He studied Paley's [Natural Theology](#) which made an [argument for divine design in nature](#), explaining [adaptation](#) as God acting through laws of nature.^[23] He read [John Herschel's](#) new book which described the highest aim of [natural philosophy](#) as understanding such laws through [inductive reasoning](#) based on observation, and [Alexander von Humboldt's Personal Narrative](#) of scientific travels. Inspired with "a burning zeal" to contribute, Darwin planned to visit [Tenerife](#) with some classmates after graduation to study natural history in the [tropics](#). In preparation, he joined [Adam Sedgwick's](#) geology course, then went with him in the summer to map strata in [Wales](#).^[24] After a fortnight with student friends at [Barmouth](#), he returned home to find a letter from Henslow proposing Darwin as a suitable (if unfinished) gentleman naturalist for a self-funded place with captain [Robert FitzRoy](#), more as a companion than a mere collector, on [HMS Beagle](#) which was to leave in four weeks on an expedition to chart the coastline of South America.^[25] His father objected to the planned two-year voyage, regarding it as a waste of time, but was persuaded by his brother-in-law, [Josiah Wedgwood](#), to agree to his son's participation.^[26]

Journey of the *Beagle*

For more details on this topic, see [Second voyage of HMS Beagle](#).



The voyage of the *Beagle*

Beginning on the 27th of December, 1831, the voyage lasted almost five years and, as FitzRoy had intended, Darwin spent most of that time on land investigating geology and making natural history collections, while the *Beagle* [surveyed and charted](#) coasts. ^{[3][27]} He kept careful notes of his observations and theoretical speculations, and at intervals during the voyage his specimens were sent to Cambridge together with letters including a copy of [his journal](#) for his family. ^[28] He had some expertise in geology, beetle collecting and dissecting [marine invertebrates](#), but in all other areas was a novice and ably collected specimens for expert appraisal. ^[29] Despite repeatedly suffering badly from seasickness while at sea, most of his zoology notes are about marine invertebrates, starting with [plankton](#) collected in a calm spell. ^{[27][30]}

On their first stop ashore at [St Jago](#), Darwin found that a white band high in the [volcanic rock](#) cliffs included seashells. FitzRoy had given him the first volume of [Charles Lyell](#)'s *Principles of Geology* which set out [uniformitarian](#) concepts of land slowly rising or falling over immense periods, ^[11] and Darwin saw things Lyell's way, theorising and thinking of writing a book on geology. ^[31] In [Brazil](#), Darwin was delighted by the [tropical forest](#), ^[32] but detested the sight of [slavery](#). ^[33]

At [Punta Alta](#) in [Patagonia](#) he made a major find of fossils of huge extinct [mammals](#) in cliffs beside modern seashells, indicating recent [extinction](#) with no signs of change in climate or catastrophe. He identified the little known *Megatherium*, with bony armour which at first seemed to him like a giant version of the armour on local [armadillos](#). The finds brought great interest when they reached England. ^[34] On rides with [gauchos](#) into the interior to explore geology and collect more fossils he gained social, political and [anthropological](#) insights into both native and colonial people at a time of revolution, and learnt that two types of [rhea](#) had

separate but overlapping territories. ^{[35][36]} Further south he saw stepped plains of shingle and seashells as [raised beaches](#) showing a series of elevations. He read Lyell's second volume and accepted its view of "centres of creation" of species, but his discoveries and theorising challenged Lyell's ideas of smooth continuity and of extinction of species. ^{[37][38]}



As [HMS Beagle](#) surveyed the coasts of [South America](#), Darwin theorised about geology and extinction of giant mammals.

Three Fuegians on board, who had been seized during the [first Beagle voyage](#) and had spent a year in England, were taken back to [Tierra del Fuego](#) as missionaries. Darwin found them friendly and civilised, yet their relatives seemed "miserable, degraded savages", as different as wild from domesticated animals. ^[39] To Darwin the difference showed cultural advances, not racial inferiority. Unlike his scientist friends, he now thought there was no unbridgeable gap between humans and animals. ^[40] A year on, the mission had been abandoned. The Fuegian they'd named [Jemmy Button](#) lived like the other natives, had a wife, and had no wish to return to England. ^[41]

Darwin experienced an earthquake in [Chile](#) and saw signs that the land had just been raised, including [mussel](#)-beds stranded above high tide. High in the [Andes](#) he saw seashells, and several fossil trees that had grown on a sand beach. He theorised that as the land rose, [oceanic islands](#) sank, and [coral reefs](#) round them grew to form [atolls](#). ^{[42][43]}

On the geologically new [Galápagos Islands](#) Darwin looked for evidence attaching wildlife to an older "centre of creation", and found [mockingbirds](#) allied to those in Chile but differing from island to island. He heard that slight variations in the shape of [tortoise](#) shells showed which island they came from, but failed to collect them, even after eating tortoises taken on board as food. ^{[44][45]} In Australia, the [marsupial rat-kangaroo](#) and the [platypus](#) seemed so unusual that Darwin thought it was almost as though two distinct Creators had been at work. ^[46] He found the [Aborigines](#) "good-humoured & pleasant", and noted their depletion by European settlement. ^[47]

The *Beagle* investigated how the atolls of the [Cocos \(Keeling\) Islands](#) had formed, and the survey supported Darwin's theorising.^[43] FitzRoy began writing the official *Narrative* of the *Beagle* voyages, and after reading Darwin's diary he proposed incorporating it into the account.^[48] Darwin's [Journal](#) was eventually rewritten as a separate third volume, on natural history.^[49]

In [Cape Town](#) Darwin and FitzRoy met [John Herschel](#), who had recently written to Lyell praising his [uniformitarianism](#) as opening bold speculation on "that mystery of mysteries, the replacement of extinct species by others" as "a natural in contradistinction to a miraculous process".^[50] When organising his notes as the ship sailed home, Darwin wrote that if his growing suspicions about the mockingbirds, the tortoises and the [Falkland Island Fox](#) were correct, "such facts undermine the stability of Species", then cautiously added "would" before "undermine".^[51] He later wrote that such facts "seemed to me to throw some light on the origin of species".^[52]

Inception of Darwin's evolutionary theory

For more details on this topic, see [Inception of Darwin's theory](#).



While still a young man, Charles Darwin joined the scientific elite

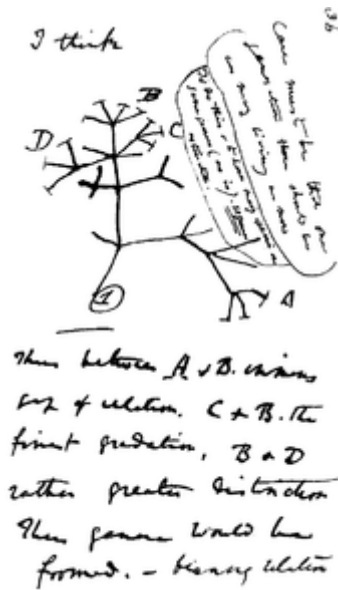
When the *Beagle* returned on 2 October 1836, Darwin was already a celebrity in scientific circles as in December 1835 [Henslow](#) had fostered his former pupil's reputation by giving selected naturalists a pamphlet of Darwin's geological letters.^[53] Darwin visited his home in Shrewsbury and saw relatives, then hurried to [Cambridge](#) to see Henslow, who advised on finding naturalists available to catalogue the collections and agreed to take on the botanical specimens. Darwin's father organised investments, enabling his son to be a self-funded [gentleman](#) scientist, and an excited Darwin went round the [London](#) institutions being fêted and seeking experts to describe the collections. Zoologists had a huge backlog of work, and there was a danger of specimens just being left in storage.^[54]

[Charles Lyell](#) eagerly met Darwin for the first time on 29 October and soon introduced him to the up-and-coming anatomist [Richard Owen](#), who had the facilities of the [Royal College of Surgeons](#) to work on the fossil bones collected by Darwin. Owen's surprising results included gigantic extinct [sloths](#), a near complete skeleton of the unknown [Scelidotherium](#) and a [hippopotamus](#)-sized [rodent](#)-like skull named [Toxodon](#) resembling a giant [capybara](#). The armour fragments were from [Glyptodon](#), a huge armadillo-like creature as Darwin had initially thought.^[55] These extinct creatures were related to living species in South America.^[56]

In mid-December Darwin took lodgings in Cambridge to organise work on his collections and rewrite his *Journal*.^[57] He wrote his first paper, showing that the South American landmass was slowly rising, and with Lyell's enthusiastic backing read it to the [Geological Society of London](#) on 4 January 1837. On the same day, he presented his mammal and bird specimens to the [Zoological Society](#). The ornithologist [John Gould](#) soon announced that the Galapagos birds that Darwin had thought a mixture of [blackbirds](#), "[gros-beaks](#)" and [finches](#), were, in fact, twelve [separate species of finches](#). On 17 February Darwin was elected to the Council of the Geographical Society and Lyell's presidential address presented Owen's findings on Darwin's fossils, stressing geographical continuity of species as supporting his [uniformitarian](#) ideas.^[58]

Early in March, Darwin moved to London to be near this work, joining Lyell's social circle of scientists and [experts](#) such as [Charles Babbage](#),^[59] who described God as a programmer of laws. [John Herschel](#)'s letter on the "mystery of mysteries" of new species was widely discussed, with explanations sought in [laws of nature](#), not [ad hoc](#) miracles. Darwin stayed with his [freethinking](#) brother [Erasmus](#), part of this [Whig](#) circle and close friend of writer [Harriet Martineau](#) who promoted [Malthusianism](#) underlying the controversial Whig [Poor Law reforms](#) to stop welfare from causing overpopulation and more poverty. As a [Unitarian](#) she welcomed the [radical](#) implications of [transmutation of species](#), promoted by [Grant](#) and younger surgeons influenced by [Geoffroy](#), but anathema to Anglicans defending social order.^{[50][60]}

In their first meeting to discuss his detailed findings, Gould told Darwin that the Galápagos [mockingbirds](#) from different islands were separate species, not just varieties, and the finch group included the "[wrens](#)". Darwin had not labelled the finches by island, but from the notes of others on the *Beagle*, including FitzRoy, he allocated species to islands.^[61] The two [rheas](#) were also distinct species, and on 14 March Darwin announced how their distribution changed going southwards.^[62]



In mid-July 1837 Darwin started his "B" notebook on *Transmutation of Species*, and on page 36 wrote "I think" above his first [evolutionary tree](#).

By mid-March, Darwin was speculating in his *Red Notebook* on the possibility that "one species does change into another" to explain the geographical distribution of living species such as the rheas, and extinct ones such as the strange [Macrauchenia](#), resembling a giant [guanaco](#). His thoughts on lifespan, [asexual reproduction](#) and [sexual reproduction](#) developed in his "B" notebook around mid-July on to variation in offspring "to adapt & alter the race to *changing* world" explaining the [Galápagos tortoises](#), mockingbirds and rheas. He sketched branching descent, then a [genealogical](#) branching of a single [evolutionary tree](#), in which "It is absurd to talk of one animal being higher than another", discarding [Lamarck's](#) independent [lineages](#) progressing to higher forms. ^[63]

Overwork, illness, and marriage

While developing this intensive study of [transmutation](#), Darwin became mired in more work. Still rewriting his *Journal*, he took on editing and publishing the expert reports on his collections, and with Henslow's help obtained a Treasury grant of £1,000 to sponsor this multi-volume [Zoology of the Voyage of H.M.S. Beagle](#), a sum equivalent to about £73,000 in present day terms. ^[64] He stretched the funding to include his planned books on geology, and agreed unrealistic dates with the publisher. Darwin finished writing his *Journal* around 20 June 1837 just as [Queen Victoria](#) came to the throne, but then had its proofs to correct. ^[65]

Darwin's health suffered from the pressure. On 20 September he had "an uncomfortable palpitation of the heart", so his doctors urged him to

"knock off all work" and live in the country for a few weeks. After visiting Shrewsbury he joined his Wedgwood relatives at [Maer Hall](#), [Staffordshire](#), but found them too eager for tales of his travels to give him much rest. His charming, intelligent, and cultured cousin [Emma Wedgwood](#), nine months older than Darwin, was nursing his invalid aunt. His uncle [Jos](#) pointed out an area of ground where cinders had disappeared under [loam](#) and suggested that this might have been the work of [earthworms](#), inspiring "a new & important theory" on their role in [soil formation](#) which Darwin presented at the Geological Society on 1 November.^[66]

[William Whewell](#) pushed Darwin to take on the duties of Secretary of the Geological Society. After initially declining the work, he accepted the post in March 1838.^[67] Despite the grind of writing and editing the *Beagle* reports, Darwin made remarkable progress on transmutation, taking every opportunity to question expert naturalists and, unconventionally, people with practical experience such as farmers and [pigeon fanciers](#).^{[3][68]} Over time his research drew on information from his relatives and children, the family butler, neighbours, colonists and former shipmates.^[69] He included mankind in his speculations from the outset, and on seeing an [orangutan](#) in the zoo on 28 March 1838 noted its child-like behaviour.^[70]

The strain took a toll, and by June he was being laid up for days on end with stomach problems, headaches and heart symptoms. For the rest of his life, he was repeatedly incapacitated with episodes of stomach pains, vomiting, severe [boils](#), palpitations, trembling and other symptoms, particularly during times of stress such as attending meetings or making social visits. The cause of [Darwin's illness](#) remained unknown, and attempts at treatment had little success.^[71]

On 23 June he took a break and went "geologising" in Scotland. He visited [Glen Roy](#) in glorious weather to see the parallel "roads" cut into the hillsides at three heights. He later published his view that these were marine [raised beaches](#), but then had to accept that they were shorelines of a [proglacial lake](#).^[72]

Fully recuperated, he returned to Shrewsbury in July. Used to jotting down daily notes on animal breeding, he scrawled rambling thoughts about career and prospects on two scraps of paper, one with columns headed "*Marry*" and "*Not Marry*". Advantages included "constant companion and a friend in old age ... better than a dog anyhow", against points such as "less money for books" and "terrible loss of time."^[73] Having decided in favour, he discussed it with his father, then went to visit Emma on 29 July. He did not get around to proposing, but against his father's advice he mentioned his ideas on transmutation.^[74]

Continuing his research in London, Darwin's wide reading now included the sixth edition of [Malthus's *An Essay on the Principle of Population*](#)

In October 1838, that is, fifteen months after I had begun my systematic enquiry, I happened to read for amusement Malthus on Population, and being well prepared to appreciate the struggle for existence which everywhere goes on from long-continued observation of the habits of animals and plants, it at once struck me that under these circumstances favourable variations would tend to be preserved, and unfavourable ones to be destroyed. The result of this would be the formation of new species. Here, then, I had at last got a theory by which to work... ^[75]

Malthus asserted that unless human population is kept in check, it increases in a [geometrical progression](#) and soon exceeds food supply in what is known as a [Malthusian catastrophe](#). ^[3] Darwin was well prepared to see at once that this also applied to [de Candolle's](#) "warring of the species" of plants and the struggle for existence among wildlife, explaining how numbers of a species kept roughly stable. As species always breed beyond available resources, favourable variations would make organisms better at surviving and passing the variations on to their offspring, while unfavourable variations would be lost. This would result in the formation of new species. ^{[3][76]} On 28 September 1838 he noted this insight, describing it as a kind of wedging, forcing adapted structures into gaps in the economy of nature as weaker structures were thrust out. ^[3] By mid December he saw a similarity between farmers picking the best breeding stock and a Malthusian Nature selecting from chance variants so that "every part of newly acquired structure is fully practical and perfected", ^[77] thinking this comparison "a beautiful part of my theory". ^[78]



Darwin chose to marry his cousin, [Emma Wedgwood](#).

On 11 November, he returned to Maer and proposed to Emma, once more telling her his ideas. She accepted, then in exchanges of loving letters she showed how she valued his openness in sharing their differences, also expressing her strong [Unitarian](#) beliefs and concerns that his honest doubts might separate them in the afterlife. ^[79] While he was house-hunting in London, bouts of illness continued and Emma wrote urging him to get some rest,

almost prophetically remarking "So don't be ill any more my dear Charley till I can be with you to nurse you." He found what they called "Macaw Cottage" (because of its gaudy interiors) in [Gower Street](#), then moved his "museum" in over Christmas. On 24 January 1839 Darwin was elected a [Fellow of the Royal Society](#).^[80]

On 29 January Darwin and Emma Wedgwood were married at Maer in an Anglican ceremony arranged to suit the Unitarians, then immediately caught the train to London and their new home.^[81]

Preparing the theory of natural selection for publication

For more details on this topic, see [Development of Darwin's theory](#).

Darwin now had the framework of his theory of [natural selection](#) "by which to work",^[82] as his "prime hobby".^[83] His research included [animal husbandry](#) and extensive experiments with plants, finding evidence that species were not fixed and investigating many detailed ideas to refine and substantiate his theory.^[3] For fifteen years this work was in the background to his main occupation of writing on geology and publishing expert reports on the *Beagle* collections.^[84]

When FitzRoy's *Narrative* was published in May 1839, Darwin's [Journal and Remarks](#) was such a success as the third volume that later that year it was published on its own.^[85] Early in 1842, Darwin wrote about his ideas to [Charles Lyell](#), who noted that his ally "denies seeing a beginning to each crop of species".^[86]

Darwin's book [The Structure and Distribution of Coral Reefs](#) on his theory of [atoll](#) formation was published in May 1842 after more than three years of work, and he then wrote his first "pencil sketch" of his theory of natural selection.^[87] To escape the pressures of London, the family moved to rural [Down House](#) in September.^[88] On 11 January 1844 Darwin mentioned his theorising to the botanist [Joseph Dalton Hooker](#), writing with melodramatic humour "it is like confessing a murder".^{[89][90]} Hooker replied "There may in my opinion have been a series of productions on different spots, & also a gradual change of species. I shall be delighted to hear how you think that this change may have taken place, as no presently conceived opinions satisfy me on the subject."^[91]



Darwin's "sandwalk" at [Down House](#) was his usual "Thinking Path". ^[92]

By July, Darwin had expanded his "sketch" into a 230-page "Essay", to be expanded with his research results if he died prematurely. ^[93] In November the anonymously published sensational best-seller [*Vestiges of the Natural History of Creation*](#) brought wide interest in transmutation. Darwin scorned its amateurish geology and zoology, but carefully reviewed his own arguments. Controversy erupted, and it continued to sell well despite contemptuous dismissal by scientists. ^{[94][95]}

Darwin completed his third geological book in 1846. He now renewed a fascination and expertise in [marine invertebrates](#), dating back to his student days with [Grant](#), by dissecting and classifying the [barnacles](#) he had collected on the voyage, enjoying observing beautiful structures and thinking about comparisons with allied structures. ^[96] In 1847, Hooker read the "Essay" and sent notes that provided Darwin with the calm critical feedback that he needed, but would not commit himself and questioned Darwin's opposition to continuing acts of [creation](#). ^[97]

In an attempt to improve his chronic ill health, Darwin went in 1849 to Dr. [James Gully](#)'s [Malvern](#) spa and was surprised to find some benefit from [hydrotherapy](#). ^[98] Then in 1851 his treasured daughter [Annie](#) fell ill, reawakening his fears that his illness might be hereditary, and after a long series of crises she died. ^[99]

In eight years of work on barnacles (*Cirripedia*), Darwin's theory helped him to find "[homologies](#)" showing that slightly changed body parts served different functions to meet new conditions, and in some [genera](#) he found minute males [parasitic](#) on [hermaphrodites](#), showing an [intermediate stage](#) in evolution of [distinct sexes](#). ^[100] In 1853 it earned him the [Royal Society](#)'s Royal Medal, and it made his reputation as a [biologist](#). ^[101] He resumed work on his theory of species in 1854, and in November realised that divergence in the character of descendants could be explained by them becoming adapted to "diversified places in the economy of nature". ^[102]

Publication of the theory of natural selection

For more details on this topic, see [Publication of Darwin's theory](#).



Darwin was forced into swift publication of his theory of [natural selection](#).

By the start of 1856, Darwin was investigating whether eggs and [seeds](#) could survive travel across seawater to spread species across oceans. [Hooker](#) increasingly doubted the traditional view that species were fixed, but their young friend [Thomas Henry Huxley](#) was firmly against evolution. [Lyell](#) was intrigued by Darwin's speculations without realising their extent. When he read a paper by [Alfred Russel Wallace](#) on the *Introduction* of species, he saw similarities with Darwin's thoughts and urged him to publish to establish precedence. Though Darwin saw no threat, he began work on a short paper. Finding answers to difficult questions held him up repeatedly, and he expanded his plans to a "big book on species" titled *Natural Selection*. He continued his researches, [obtaining information](#) and specimens from naturalists worldwide including Wallace who was working in [Borneo](#). The American botanist [Asa Gray](#) showed similar interests, and on 5 September 1857 Darwin sent Gray a detailed outline of his ideas including an abstract of *Natural Selection*. In December, Darwin received a letter from Wallace asking if the book would examine [human origins](#). He responded that he would avoid that subject, "so surrounded with prejudices", while encouraging Wallace's theorising and adding that "I go much further than you."^[103]

Darwin's book was half way when, on 18 June 1858, he received a paper from Wallace describing natural selection. Shocked that he had been "forestalled", Darwin sent it on to Lyell, as requested, and, though Wallace had not asked for publication, he suggested he would send it to any journal that Wallace chose. His family was in crisis with children in the village dying of [scarlet fever](#), and he put matters in the hands of Lyell and Hooker. They decided on a joint presentation at the [Linnean Society](#) on 1 July of [On the Tendency of Species to form Varieties; and](#)

[on the Perpetuation of Varieties and Species by Natural Means of Selection](#);

however, Darwin's baby son died of the scarlet fever and he was too distraught to attend. ^[104]

There was little immediate attention to this announcement of the theory; the president of the Linnean Society remarked in May 1859 that the year had not been marked by any revolutionary discoveries. ^[105] Only one review rankled enough for Darwin to recall it later; Professor [Samuel Haughton](#) of Dublin claimed that "all that was new in them was false, and what was true was old." ^[106] Darwin struggled for thirteen months to produce an abstract of his "big book", suffering from ill health but getting constant encouragement from his scientific friends. Lyell arranged to have it published by [John Murray](#). ^[107]

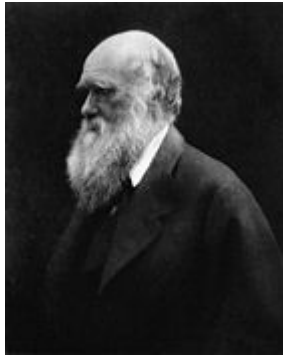
[On the Origin of Species](#) proved unexpectedly popular, with the entire stock of 1,250 copies oversubscribed when it went on sale to booksellers on 22 November 1859. ^[108] In the book, Darwin set out "one long argument" of detailed observations, inferences and consideration of anticipated objections. ^[109] His only allusion to human evolution was the understatement that "light will be thrown on the origin of man and his history". ^[110] His theory is simply stated in the introduction:

As many more individuals of each species are born than can possibly survive; and as, consequently, there is a frequently recurring struggle for existence, it follows that any being, if it vary however slightly in any manner profitable to itself, under the complex and sometimes varying conditions of life, will have a better chance of surviving, and thus be *naturally selected*. From the strong principle of inheritance, any selected variety will tend to propagate its new and modified form. ^[111]

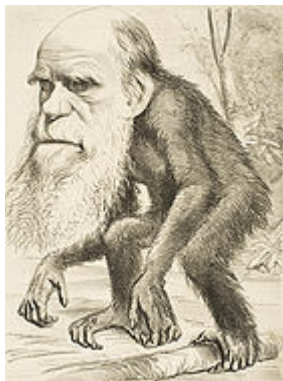
He put a strong case for [common descent](#), but avoided the then controversial term "[evolution](#)", and at the end of the book concluded that:

There is grandeur in this view of life, with its several powers, having been originally breathed into a few forms or into one; and that, whilst this planet has gone cycling on according to the fixed law of gravity, from so simple a beginning endless forms most beautiful and most wonderful have been, and are being, evolved. ^[112]

Responses to the publication



During the Darwin family's 1868 holiday in her [Isle of Wight](#) cottage, [Julia Margaret Cameron](#) took portraits showing the bushy beard Darwin had grown by 1866.



An 1871 caricature following publication of [The Descent of Man](#) was typical of many showing Darwin with an [ape](#) body, identifying him in popular culture as the leading author of evolutionary theory. ^[113]

For more details on this topic, see [Reaction to Darwin's theory](#).

The book aroused international interest, with less controversy than had greeted the popular [Vestiges of Creation](#). ^[114] Though Darwin's illness kept him away from the public debates, he eagerly scrutinised the scientific response, commenting on press cuttings, reviews, articles, satires and caricatures, and [corresponded on it](#) with colleagues worldwide. ^[115] Darwin had only said "Light will be thrown on the origin of man", ^[116] but the first review claimed it made a creed of the "men from monkeys" idea from [Vestiges](#). ^[117] Amongst early favourable responses, Huxley's reviews swiped at [Richard Owen](#), leader of the scientific establishment Huxley was trying to overthrow. ^[118] In April, Owen's review attacked Darwin's friends and condescendingly dismissed his ideas, angering Darwin, ^[119] but Owen and others began to promote ideas of supernaturally guided evolution. ^[120]

The [Church of England](#)'s response was mixed. Darwin's old Cambridge tutors [Sedgwick](#) and [Henslow](#) dismissed the ideas, but [liberal clergymen](#) interpreted natural selection as an instrument of God's design, with the cleric [Charles Kingsley](#) seeing it as "just as noble a conception of

Deity".^[121] In 1860, the publication of *Essays and Reviews* by seven liberal Anglican theologians diverted clerical attention from Darwin, with its ideas including higher criticism attacked by church authorities as heresy. In it, Baden Powell argued that miracles broke God's laws, so belief in them was atheistic, and praised "Mr Darwin's masterly volume [supporting] the grand principle of the self-evolving powers of nature".^[122] Asa Gray discussed teleology with Darwin, who imported and distributed Gray's pamphlet on theistic evolution, *Natural Selection is not inconsistent with Natural Theology*.^{[121][123]} The most famous confrontation was at the public 1860 Oxford evolution debate during a meeting of the British Association for the Advancement of Science, where the Bishop of Oxford Samuel Wilberforce, though not opposed to transmutation of species, argued against Darwin's explanation and human descent from apes. Joseph Hooker argued strongly for Darwin, and Thomas Huxley's legendary retort, that he would rather be descended from an ape than a man who misused his gifts, came to symbolise a triumph of science over religion.^{[121][124]}

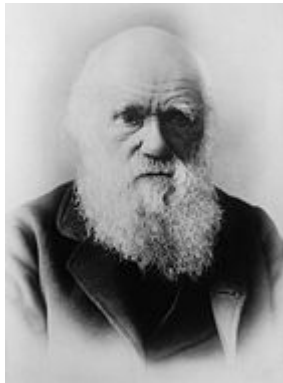
Even Darwin's close friends Gray, Hooker, Huxley and Lyell still expressed various reservations but gave strong support, as did many others, particularly younger naturalists. Gray and Lyell sought reconciliation with faith, while Huxley portrayed a polarisation between religion and science. He campaigned pugnaciously against the authority of the clergy in education,^[121] aiming to overturn the dominance of clergymen and aristocratic amateurs under Owen in favour of a new generation of professional scientists. Owen's claim that brain anatomy proved humans to be a separate biological order from apes was shown to be false by Huxley in a long running dispute parodied by Kingsley as the "Great Hippocampus Question", and discredited Owen.^[125]

Darwinism became a movement covering a wide range of evolutionary ideas. In 1863 Lyell's *Geological Evidences of the Antiquity of Man* popularised prehistory, though his caution on evolution disappointed Darwin. Weeks later Huxley's *Evidence as to Man's Place in Nature* showed that anatomically, humans are apes, then *The Naturalist on the River Amazons* by Henry Walter Bates provided empirical evidence of natural selection.^[126] Lobbying brought Darwin Britain's highest scientific honour, the Royal Society's Copley Medal, awarded on 3 November 1864.^[127] That day, Huxley held the first meeting of what became the influential X Club devoted to "science, pure and free, untrammelled by religious dogmas".^[128] By the end of the decade most scientists agreed that evolution occurred, but only a minority supported Darwin's view that the chief mechanism was natural selection.^[129]

The *Origin of Species* was translated into many languages, becoming a staple scientific text attracting thoughtful attention from all walks of

life, including the “working men” who flocked to Huxley’s lectures. ^[130] Darwin’s theory also resonated with various movements at the time ^[111] and became a key fixture of [popular culture](#). ^[14] Cartoonists parodied animal ancestry in an old tradition of showing humans with animal traits, and in Britain these droll images served to popularise Darwin’s theory in an unthreatening way. While ill in 1862 Darwin began growing a beard, and when he reappeared in public in 1866 caricatures of him as an [ape](#) helped to identify all forms of [evolutionism](#) with Darwinism. ^[113]

Descent of Man, sexual selection, and botany



By 1879, an increasingly famous Darwin had suffered years of illness.

More detailed articles cover Darwin’s life from [Orchids to Variation](#), from [Descent of Man to Emotions](#) and from [Insectivorous Plants to Worms](#)

Despite repeated bouts of illness during the last twenty-two years of his life, Darwin’s work continued. Having published [On the Origin of Species](#) as an [abstract](#) of his theory, he pressed on with experiments, research, and writing of his “big book”. He covered [human descent](#) from earlier animals including evolution of society and of mental abilities, as well as explaining decorative beauty in wildlife and diversifying into innovative plant studies.

Enquiries about insect [pollination](#) led in 1861 to novel studies of wild [orchids](#), showing adaptation of their flowers to [attract specific moths](#) to each species and ensure [cross fertilisation](#). In 1862 [Fertilisation of Orchids](#) gave his first detailed demonstration of the power of natural selection to explain complex [ecological](#) relationships, making testable predictions. As his health declined, he lay on his sickbed in a room filled with inventive experiments to trace the movements of [climbing plants](#). ^[131] Admiring visitors included [Ernst Haeckel](#), a zealous proponent of *Darwinismus* incorporating [Lamarckism](#) and [Goethe](#)’s idealism. ^[132] Wallace remained supportive, though he increasingly turned to [Spiritualism](#). ^[133]

[*The Variation of Animals and Plants under Domestication*](#) of 1868 was the first part of Darwin's planned "big book", and included his unsuccessful hypothesis of [pangenesis](#) attempting to explain [heredity](#). It sold briskly at first, despite its size, and was translated into many languages. He wrote most of a second part, on natural selection, but it remained unpublished in his lifetime. ^[134]



[Punch's almanac](#) for 1882, published shortly before Darwin's death, depicts him amidst evolution from chaos to Victorian gentleman with the title *Man Is But A Worm*.

[Lyell](#) had already popularised human prehistory, and [Huxley](#) had shown that anatomically humans are apes. ^[126] With [*The Descent of Man, and Selection in Relation to Sex*](#) published in 1871, Darwin set out evidence from numerous sources that humans are animals, showing continuity of physical and mental attributes, and presented [sexual selection](#) to explain impractical animal features such as the [peacock](#)'s plumage as well as human evolution of [culture](#), differences between sexes, and physical and cultural [racial characteristics](#), while emphasising that humans are all one species. ^[135] His research using images was expanded in his 1872 book [*The Expression of the Emotions in Man and Animals*](#), one of the first books to feature printed photographs, which discussed the [evolution of human psychology](#) and its continuity with the [behaviour of animals](#). Both books proved very popular, and Darwin was impressed by the general assent with which his views had been received, remarking that "everybody is talking about it without being shocked." ^[136] His conclusion was "that man with all his noble qualities, with sympathy which feels for the most debased, with benevolence which extends not only to other men but to the humblest living creature, with his god-like intellect which has penetrated into the movements and constitution of the solar system - with all these exalted powers - Man still bears in his bodily frame the indelible stamp of his lowly origin." ^[137]

His evolution-related experiments and investigations led to books on [*Insectivorous Plants*](#), [*The Power of Movement in Plants*](#), [*The Effects of Cross and Self Fertilisation in the Vegetable Kingdom*](#), different forms of flowers on plants of the same species, and [*The Power of Movement in*](#)

Plants. In his last book he returned to *[The Formation of Vegetable Mould through the Action of Worms](#)*.

He died at [Down House](#) on 19 April 1882. He had expected to be buried in St Mary's churchyard at [Downe](#), but at the request of Darwin's colleagues, [William Spottiswoode](#) (President of the [Royal Society](#)) arranged for Darwin to be given a [state funeral](#) and buried in [Westminster Abbey](#), close to [John Herschel](#) and [Isaac Newton](#).^[138] Only five non-royal personages were granted that honour of a UK state funeral during the 19th century.^[13]

Darwin was perceived as a national hero who had changed thinking, and scientists now accepted [evolution](#) as [descent with modification](#), but few agreed with him that "natural selection has been the main but not the exclusive means of modification".^[139] In "[the eclipse of Darwinism](#)" most favoured alternative evolutionary mechanisms, but these proved untenable, and the development of the [modern evolutionary synthesis](#) with [population genetics](#) and [Mendelian genetics](#) from the 1930s to the 1950s brought a broad scientific consensus that [natural selection](#) was the basic mechanism of evolution. Research and debate has continued within this frame of reference.^[4]

Darwin's children



Darwin and his eldest son [William Erasmus Darwin](#) in 1842.

Darwin's Children

[William Erasmus Darwin](#)

(27 December 1839 – 1914)

[Anne Elizabeth Darwin](#)

(2 March 1841 – 23 April 1851)

Mary Eleanor Darwin	(23 September 1842 – 16 October 1842)
Henrietta Emma "Ettv" Darwin	(25 September 1843 – 1929)
George Howard Darwin	(9 July 1845 – 7 December 1912)
Elizabeth "Bessv" Darwin	(8 July 1847 – 1926)
Francis Darwin	(16 August 1848 – 19 September 1925)
Leonard Darwin	(15 January 1850 – 26 March 1943)
Horace Darwin	(13 May 1851 – 29 September 1928)
Charles Waring Darwin	(6 December 1856 – 28 June 1858)



In 1851 Darwin was devastated when his daughter [Annie](#) died. By then his faith in [Christianity](#) had dwindled, and he had stopped going to church. ^[140]

The Darwins had ten children: two died in infancy, and [Annie's](#) death at the age of ten had a devastating effect on her parents. Charles was a devoted father and uncommonly attentive to his children. ^[7] Whenever they fell ill he feared that they might have inherited weaknesses from [inbreeding](#) due to the close family ties he shared with his wife and cousin, [Emma Wedgwood](#). He examined this topic in his writings, contrasting it with the advantages of crossing amongst many organisms. ^[141] Despite his fears, most of the surviving children went on to have distinguished careers as notable members of the prominent [Darwin-Wedgwood family](#). ^[142]

Of his surviving children, [George](#), [Francis](#) and [Horace](#) became Fellows of the Royal Society, ^[143] distinguished as [astronomer](#), ^[144] [botanist](#) and [civil engineer](#), respectively. His son [Leonard](#), on the other hand, went on to be a [soldier](#), [politician](#), [economist](#), [eugenicist](#) and mentor of the statistician and [evolutionary biologist](#) [Ronald Fisher](#). ^[145]

Religious views

For more details on this topic, see [Charles Darwin's views on religion](#).

Darwin's family tradition was [nonconformist Unitarianism](#), while his father and grandfather were [freethinkers](#), and his [baptism](#) and [boarding school](#) were [Church of England](#).^[16] When going to Cambridge to become an [Anglican](#) clergyman, he did not doubt the [literal truth](#) of the [Bible](#).^[21] He learnt [John Herschel](#)'s science which, like [William Paley](#)'s [natural theology](#), sought explanations in laws of nature rather than miracles and saw [adaptation](#) of species as [evidence of design](#).^{[23][24]} On board the *Beagle*, Darwin was quite [orthodox](#) and would quote the Bible as an authority on [morality](#).^[146] He looked for "centres of creation" to explain distribution,^[44] and related the [antlion](#) found near [kangaroos](#) to distinct "periods of Creation".^[46]

By his return he was [critical of the Bible as history](#), and wondered why all religions should not be equally valid.^[146] In the next few years, while intensively speculating on geology and [transmutation of species](#), he gave much thought to religion and openly discussed this with [Emma](#), whose beliefs also came from intensive study and questioning.^[79] The [theodicy](#) of Paley and [Thomas Malthus](#) vindicated evils such as starvation as a result of a benevolent creator's laws which had an overall good effect. To Darwin, [natural selection](#) produced the good of adaptation but removed the need for design,^[147] and he could not see the work of an omnipotent deity in all the pain and suffering such as the [ichneumon wasp](#) paralysing [caterpillars](#) as live food for its eggs.^[123] He still viewed organisms as perfectly adapted, and *On the Origin of Species* reflects theological views. Though he thought of religion as a [tribal](#) survival strategy, Darwin still believed that God was the ultimate lawgiver.^{[148][149]}

Darwin remained close friends with the [vicar](#) of Downe, [John Innes](#), and continued to play a leading part in the parish work of the church,^[150] but from around 1849 would go for a walk on Sundays while his family attended church.^[140] He considered it "absurd to doubt that a man might be an ardent theist and an evolutionist"^{[151] [152]} and, though reticent about his religious views, in 1879 he wrote that "I have never been an atheist in the sense of denying the existence of a God. - I think that generally... an [agnostic](#) would be the most correct description of my state of mind."^{[151][79]}

The "[Lady Hope Story](#)", published in 1915, claimed that Darwin had reverted back to Christianity on his sickbed. The claims were refuted by Darwin's children and have been dismissed as false by historians.^[153] His last words were to his family, telling Emma "I am not the least afraid of death - Remember what a good wife you have been to me - Tell all my children to remember how good they have been to me", then as she laid down for a rest,

he repeatedly told Henrietta and Francis "It's almost worth while to be sick to be nursed by you". [\[154\]](#)

Political interpretations

Darwin's fame and popularity led to his name being associated with ideas and movements which at times had only an indirect relation to his writings, and sometimes went directly against his express comments.



Caricature from 1871 [Vanity Fair](#)

Eugenics

For more details on this topic, see [Eugenics](#).

Darwin was interested by his [half-cousin Francis Galton](#)'s argument, introduced in 1865, that [statistical analysis](#) of [heredity](#) showed that moral and mental human traits could be inherited, and principles of animal breeding could apply to humans. In [The Descent of Man](#) Darwin noted that aiding the weak to survive and have families could lose the benefits of [natural selection](#), but cautioned that withholding such aid would endanger the instinct of sympathy, "the noblest part of our nature", and factors such as education could be more important. When Galton suggested that publishing research could encourage intermarriage within a "caste" of "those who are naturally gifted", Darwin foresaw practical difficulties, and thought it "the sole feasible, yet I fear [utopian](#), plan of procedure in improving the human race", preferring to simply publicise the importance of inheritance and leave decisions to individuals. [\[155\]](#)

Galton named the field of study [Eugenics](#) in 1883, after Darwin's death, and developed [biometrics](#). Eugenics movements were widespread at a time when Darwin's [natural selection was eclipsed](#) by [Mendelian genetics](#), and in some countries including the United States, [compulsory sterilisation](#) laws were imposed. Following the use of [Eugenics in Nazi Germany](#) it has been largely abandoned throughout the world. ^[v]

Social Darwinism

For more details on this topic, see [Social Darwinism](#).

Taking descriptive ideas as moral and social justification creates the ethical [is-ought problem](#). When [Thomas Malthus](#) argued that [population growth beyond resources](#) was ordained by God to get humans to [work productively](#) and show restraint in getting families, this was used in the 1830s to justify [workhouses](#) and [laissez-faire economics](#). ^[156] Evolution was seen as having social implications, and [Herbert Spencer](#)'s 1851 book *Social Statics* based ideas of human freedom and individual liberties on his [Lamarckian](#) evolutionary theory. ^[157]

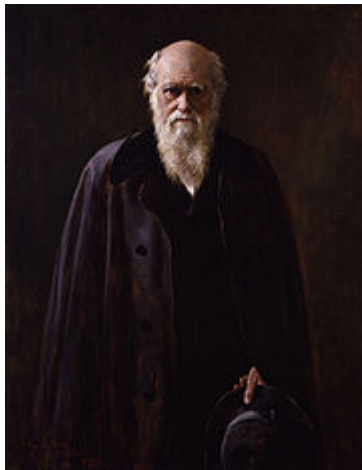
Darwin's theory of evolution was a matter of explanation. He thought it "absurd to talk of one animal being higher than another" and saw evolution as having no goal, but soon after the *Origin* was published in 1859, critics derided his description of a struggle for existence as a [Malthusian](#) justification for the English industrial [capitalism](#) of the time. The term [Darwinism](#) was used for the evolutionary ideas of others, including Spencer's "[survival of the fittest](#)" as free-market progress, and [Ernst Haeckel](#)'s [racist](#) ideas of [human development](#). Darwin did not share the racism common at that time: a point examined by the philosopher [Antony Flew](#), who is at pains to distance Darwin's attitudes from those later attributed to him. ^[158] Darwin was strongly against slavery, against "ranking the so-called races of man as distinct species", and against ill-treatment of native people. ^{[159][v1]}

Darwin's views on social and political issues reflected his time and social position. He thought men's eminence over women was the outcome of sexual selection, a view disputed by [Antoinette Brown Blackwell](#) in *The Sexes Throughout Nature*. ^[160] He valued European civilisation and saw colonisation as spreading its benefits, with the sad but inevitable effect of extermination of savage peoples who did not become civilised. Darwin's theories presented this as natural, and were cited to promote policies which went against his humanitarian principles. ^[161] Writers used [natural selection](#) to argue for various, often contradictory, ideologies such as laissez-faire dog-eat dog capitalism, racism, warfare, [colonialism](#) and

[imperialism](#). However, Darwin's holistic view of nature included "dependence of one being on another", thus [pacifists](#), [socialists](#), [liberal](#) social reformers and [anarchists](#) such as Prince [Peter Kropotkin](#) stressed the value of co-operation over struggle within a species.^[162] Darwin himself insisted that social policy should not simply be guided by concepts of struggle and selection in nature.^[163]

The term "[Social Darwinism](#)" was used infrequently from around the 1890s, but became popular as a derogatory term in the 1940s when used by [Richard Hofstadter](#) to attack the laissez-faire [conservatism](#) of those like [William Graham Sumner](#) who opposed reform and socialism. Since then it has been used as a term of abuse by those opposed to what they think are the moral consequences of evolution.^{[164][156]}

Commemoration



In 1881 Darwin was an eminent figure, still working on his contributions to evolutionary thought that had had an enormous effect on many fields of science.

During Darwin's lifetime, many geographical features were given his name. An expanse of water adjoining the [Beagle Channel](#) was named [Darwin Sound](#) by [Robert FitzRoy](#) after Darwin's prompt action, along with two or three of the men, saved them from being marooned on a nearby shore when a collapsing [glacier](#) caused a large wave that would have swept away their boats,^[165] and the nearby [Mount Darwin](#) in the [Andes](#) was named in celebration of Darwin's 25th birthday.^[166] Another [Darwin Sound](#) in [British Columbia's Queen Charlotte Islands](#), between [Moresby Island](#) and [Lyell Island](#), was named in 1878 by Canada's then-chief geographer [George M. Dawson](#) for Darwin.^[167] When the [Beagle](#) was surveying Australia in 1839, Darwin's friend [John Lort Stokes](#) sighted a natural harbour which the ship's captain [Wickham](#) named [Port Darwin](#).^[168] The settlement of [Palmerston](#) [founded there](#)

[in 1869](#) was officially renamed [Darwin](#) in 1911. It became the capital city of Australia's [Northern Territory](#),^[168] which also boasts [Charles Darwin University](#)^[169] and [Charles Darwin National Park](#).^[170] However, [Darwin College, Cambridge](#), founded in 1964, was named in honour of the Darwin family, in part because they owned some of the site.^[171]

The [Linnean Society of London](#) has commemorated Darwin's achievements by the award of the [Darwin-Wallace Medal](#) since 1908.

More than 120 [species](#) and nine [genera](#) have been named after Darwin.^[172] In 2009, a remarkably complete fossil [primate](#) from 47 million years ago was announced as a significant [transitional fossil](#), and named [Darwinius](#) to celebrate Darwin's bicentenary.^[173] Although related to American [Emberizidae](#) or [Tanagers](#) rather than [finches](#), the group of species related to those Darwin found in the [Galápagos Islands](#) became popularly known as "[Darwin's finches](#)" following publication of [David Lack](#)'s book of that name in 1947, fostering inaccurate legends about their significance to his work.^[174]

In 1992, Darwin was ranked #16 on [Michael H. Hart](#)'s [list of the most influential figures in history](#).^[175] Darwin came fourth in the [100 Greatest Britons](#) poll sponsored by the [BBC](#) and voted for by the public.^[176] In 2000 Darwin's image appeared on the [Bank of England ten pound note](#), replacing [Charles Dickens](#). His impressive, luxuriant beard (which was reportedly difficult to forge) was said to be a contributory factor to the bank's choice.^[177]

In the [Galápagos Islands](#), the [Charles Darwin Foundation](#) based at the [Charles Darwin Research Station](#) does research and conservation. To mark 2009 they are helping to reintroduce to [Floreana Island](#) (Charles Island) the specific [mockingbird](#) which first alerted Darwin to species being unique to islands. It was eradicated from the main island by European species, mainly rats and goats, but survived on two small islands nearby.^[178]

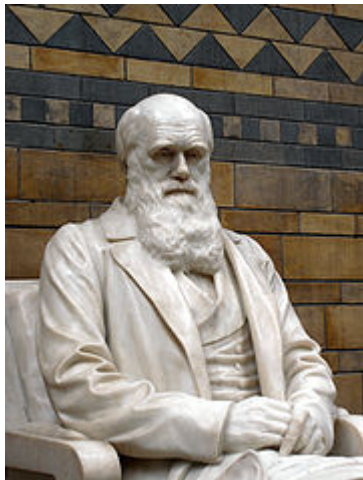
As a humorous celebration of evolution, the annual [Darwin Award](#) is bestowed on individuals who "improve our [gene pool](#) by removing themselves from it."^[179]

Numerous biographies of Darwin have been written, and the 1980 biographical novel [The Origin](#) by [Irving Stone](#) gives a closely researched fictional account of Darwin's life from the age of 22 onwards.

Darwin 2009 commemorations



[Two pound coin](#) commemorating Darwin's birth and publication of [On the Origin of Species](#).



Statue of Charles Darwin at the [Natural History Museum](#) in London

[Darwin Day](#) has become an annual celebration, and the bicentenary of Darwin's birth and the 150th anniversary of the publication of [On the Origin of Species](#) are being celebrated by events and publications around the world.^[180] The Darwin exhibition, after opening at the [American Museum of Natural History](#) in [New York City](#) in 2006, was shown at the [Museum of Science, Boston](#), the [Field Museum](#) in [Chicago](#), the [Royal Ontario Museum](#) in [Toronto](#),^[181] then from 14 November 2008 to 19 April 2009 in the [Natural History Museum, London](#), as part of the *Darwin200* programme of events across the [United Kingdom](#).^[182] It also appears at the [Palazzo delle Esposizioni](#) in [Rome](#) from 12 February to 3 May 2009.^[183] The [University of Cambridge](#) featured a festival in July 2009.^[184] His birthplace is celebrating with "Darwin's Shrewsbury 2009 Festival" events during the year.^[185]

In the United Kingdom a special commemorative issue of the [two pound coin](#) shows a portrait of Darwin facing a [chimpanzee](#) surrounded by the inscription 1809 DARWIN 2009, with the edge inscription ON THE ORIGIN OF SPECIES 1859. Collector versions of the coin have been released at a premium, and during the year the coins will be available from banks and post offices

at face value.^[186] To celebrate Darwin's life and achievements, the BBC has commissioned numerous television and radio programmes known collectively as the [BBC Darwin Season](#).

In September 2008, the [Church of England](#) issued an article saying that the 200th anniversary of his birth was a fitting time to apologise to Darwin "for misunderstanding you and, by getting our first reaction wrong, encouraging others to misunderstand you still".^[187]

A dramatic motion picture entitled [Creation](#) was released in 2009, joining a short list of film dramas about Darwin, including [The Darwin Adventure](#), released in 1972.

Works

For more details on this topic, see [List of works by Charles Darwin](#).

Darwin was a prolific writer. Even without publication of his works on evolution, he would have had a considerable reputation as the author of [The Voyage of the Beagle](#), as a geologist who had published extensively on [South America](#) and had solved the puzzle of the formation of [coral atolls](#), and as a biologist who had published the definitive work on [barnacles](#). While [The Origin of Species](#) dominates perceptions of his work, [The Descent of Man, and Selection in Relation to Sex](#) and [The Expression of Emotions in Man and Animals](#) had considerable impact, and his books on plants including [The Power of Movement in Plants](#) were innovative studies of great importance, as was his final work on [The Formation of Vegetable Mould Through the Action of Worms](#).^[188]

This botanist is denoted by the [author abbreviation](#) **Darwin** when [citing](#) a [botanical name](#).^[189]

Notes

- I. ^ˆ Darwin was eminent as a [naturalist](#), [geologist](#), [biologist](#), and [author](#); after working as a physician's assistant and two years as a [medical student](#) was educated as a [clergyman](#); and was trained in [taxidermy](#).^[190]
- II. ^ˆ [Robert FitzRoy](#) was to become known after the voyage for biblical literalism, but at this time he had considerable interest in Lyell's ideas, and they met before the voyage when Lyell asked for observations to be made in South America. FitzRoy's diary during the ascent of the River Santa Cruz in [Patagonia](#) recorded

his opinion that the plains were [raised beaches](#), but on return, newly married to a very religious lady, he recanted these ideas. ([Browne 1995](#), pp. 186, 414)

iii. ² See, for example, WILLA volume 4, [Charlotte Perkins Gilman and the Feminization of Education](#) by Deborah M. De Simone: "Gilman shared many basic educational ideas with the generation of thinkers who matured during the period of "intellectual chaos" caused by Darwin's Origin of the Species. Marked by the belief that individuals can direct human and social evolution, many progressives came to view education as the panacea for advancing social progress and for solving such problems as urbanisation, poverty, or immigration."

iv. ² See, for example, the song "A lady fair of lineage high" from [Gilbert and Sullivan](#)'s [Princess Ida](#), which describes the descent of man (but not woman!) from apes.

v. ² [Geneticists](#) studied human heredity as [Mendelian inheritance](#), while [eugenics](#) movements sought to manage society, with a focus on [social class](#) in the United Kingdom, and on disability and ethnicity in the United States, leading to geneticists seeing this as impractical [pseudoscience](#). A shift from voluntary arrangements to "negative" eugenics included [compulsory sterilisation](#) laws in the United States, copied by [Nazi Germany](#) as the basis for [Nazi eugenics](#) based on virulent racism and "[racial hygiene](#)".

(Thurtle, Phillip (Updated 17 December 1996), "[the creation of genetic identity](#)", *SEHR* 5 (Supplement: Cultural and Technological Incubations of Fascism), <http://www.stanford.edu/group/SHR/5-supp/text/thurtle.html>, retrieved 2008-11-11

Edwards, A. W. F. (01 April 2000), "[The Genetical Theory of Natural Selection](#)", *Genetics* 154 (April 2000): 1419 - 1426, [PMID 10747041](#), [http://www.genetics.org/cgi/content/full/154/4/1419#The Eclipse of Darwinism](http://www.genetics.org/cgi/content/full/154/4/1419#The%20Eclipse%20of%20Darwinism), retrieved 2008-11-11

Wilkins, John. "[Evolving Thoughts: Darwin and the Holocaust 3: eugenics](#)". http://scienceblogs.com/evolvingthoughts/2006/09/darwin_and_the_holocaust_3_eug_1.php. Retrieved 2008-11-11.)

vi. ² Darwin did not share the then common view that other races are inferior, and said of his [taxidermy](#) tutor [John Edmonstone](#), a freed black slave, "I used often to sit with him, for he was a very pleasant and intelligent man".^[17]

Early in the *Beagle* voyage he nearly lost his position on the ship when he criticised FitzRoy's defence and praise of slavery. ([Darwin](#), p. 74) He wrote home about "how steadily the general feeling, as shown at elections, has been rising against Slavery. What a proud thing for England if she is the first European nation which utterly abolishes it! I was told before leaving England that after living in slave countries all my opinions would be altered; the only alteration I am aware of is forming a much higher estimate of the negro

character.” ([Darwin 1887](#), p. [246](#)) Regarding [Fuegians](#), he “could not have believed how wide was the difference between savage and civilized man: it is greater than between a wild and domesticated animal, inasmuch as in man there is a greater power of improvement”, but he knew and liked civilised Fuegians like [Jemmy Button](#): “It seems yet wonderful to me, when I think over all his many good qualities, that he should have been of the same race, and doubtless partaken of the same character, with the miserable, degraded savages whom we first met here.” ([Darwin 1845](#), pp. [205, 207 - 208](#))

In the [Descent of Man](#) he mentioned the Fuegians and Edmonstone when arguing against “ranking the so-called races of man as distinct species”.^[191]

He rejected the ill-treatment of native people, and for example wrote of massacres of [Patagonian](#) men, women, and children, “Every one here is fully convinced that this is the most just war, because it is against barbarians. Who would believe in this age that such atrocities could be committed in a Christian civilized country?” ([Darwin 1845](#))

Citations

1. [^] [Coyne, Jerry A.](#) (2009). *Why Evolution is True*. Oxford: [Oxford University Press](#). p. 17. [ISBN 0-199-23084-6](#). “In *The Origin*, Darwin provided an alternative hypothesis for the development , diversification, and design of life. Much of that book presents evidence that not only supports evolution but at the same time refutes creationism. In Darwin’s day, the evidence for his theories was compelling but not completely decisive.”
2. [^] [Glass, Bentley](#) (1959). *Forerunners of Darwin*. Baltimore, MD: Johns Hopkins University Press. p. iv. [ISBN 0801802229](#). “Darwin’s solution is a magnificent synthesis of evidence...a synthesis...compelling in honesty and comprehensiveness”
3. [^] [a b c d e f g h van Wyhe 2008](#)
4. [^] [a b Bowler 2003](#), pp. 338, 347
5. [^] [The Complete Works of Darwin Online - Biography.](#) *darwin-online.org.uk*. Retrieved on 2006-12-15
[Dobzhansky 1973](#)
6. [^] As Darwinian scholar Joseph Carroll of the University of Missouri - St. Louis puts it in his introduction to a modern reprint of Darwin’s work: “*The Origin of Species* has special claims on our attention. It is one of the two or three most significant works of all time—one of those works that fundamentally and permanently alter our vision of the world....It is argued with a singularly rigorous consistency but it is also eloquent, imaginatively evocative, and rhetorically compelling.” Carroll, Joseph, ed

- (2003). *On the origin of species by means of natural selection*. Peterborough, Ontario: Broadview. p. 15. [ISBN 1551113376](#).
7. ^{a b} [Leff 2000](#), [About Charles Darwin](#)
 8. [Desmond & Moore 1991](#), pp. 210, 284 – 285
 9. [Desmond & Moore 1991](#), pp. 263 – 274
 10. [van Wyhe 2007](#), pp. 184, 187
 11. [Darwin – At last](#). [American Museum of Natural History](#). Retrieved on 2007-03-21
 12. [Freeman 1977](#)
 13. ^{a b} ["BBC NEWS : Politics : Thatcher state funeral undecided"](#). 2008-08-02.
http://news.bbc.co.uk/2/hi/uk_news/politics/7538482.stm. Retrieved 2008-08-10.
 14. [Leff 2000](#), [Darwin's Burial](#)
 15. [John H. Wahlert \(11 June 2001\)](#). ["The Mount House, Shrewsbury, England \(Charles Darwin\)"](#). *Darwin and Darwinism*. [Baruch College](#). <http://darwin.baruch.cuny.edu/biography/shrewsbury/mount/>. Retrieved 2008-11-26.
 16. ^{a b} [Desmond & Moore 1991](#), pp. 12 – 15
[Darwin 1958](#), pp. [21 – 25](#)
 17. ^{a b} [Darwin 1958](#), pp. [47 – 51](#)
 18. [Browne 1995](#), pp. 72 – 88
 19. [Desmond & Moore 1991](#), pp. 42 – 43
 20. [Browne 1995](#), pp. 47 – 48
 21. ^{a b} [Darwin 1958](#), pp. [57 – 67](#)
 22. [Browne 1995](#), p. 97
 23. ^{a b} [von Sydow 2005](#), pp. 5 – 7
 24. ^{a b} [Darwin 1958](#), pp. [67 – 68](#)
[Browne 1995](#), pp. 128 – 129, 133 – 141
 25. ["Darwin Correspondence Project – Letter 105 — Henslow, J. S. to Darwin, C. R., 24 Aug 1831"](#).
<http://www.darwinproject.ac.uk/darwinletters/calendar/entry-105.html>. Retrieved 2008-12-29.
 26. [Desmond & Moore 1991](#), pp. 94 – 97
 27. ^{a b} [Keynes 2000](#), pp. [ix – xi](#)
 28. [van Wyhe 2008b](#), pp. 18 – 21
 29. [Gordon Chancellor](#); [Randal Keynes \(October 2006\)](#). ["Darwin's field notes on the Galapagos: 'A little world within itself'"](#). [Darwin Online](#).
[http://darwin-online.org.uk/EditorialIntroductions/Chancellor Keynes Galapagos.html](http://darwin-online.org.uk/EditorialIntroductions/Chancellor_Keynes_Galapagos.html). Retrieved 2009-09-16.
 30. [Keynes 2001](#), pp. [21–22](#)
 31. [Browne 1995](#), pp. 183 – 190
 32. [Keynes 2001](#), pp. [41 – 42](#)

33. [^ Darwin 1958](#), pp. [73 - 74](#)
34. [^ Browne 1995](#), pp. 223 - 235
[Darwin 1835](#), p. [7](#)
[Desmond & Moore 1991](#), p. 210
35. [^ Desmond & Moore 1991](#), pp. 189 - 192, 198
36. [^ Eldredge 2006](#)
37. [^ Desmond & Moore 1991](#), pp. 131, 159
[Herbert 1991](#), pp. [174 - 179](#)
38. [^ "Darwin Online: 'Hurrah Chiloe': an introduction to the Port Desire Notebook"](#).
http://darwin-online.org.uk/EditorialIntroductions/Chancellor_fieldNotebooks1.8.html. Retrieved 2008-10-24.
39. [^ Darwin 1845](#), pp. [205 - 208](#)
40. [^ Browne 1995](#), pp. 244 - 250
41. [^ Keynes 2001](#), pp. [226 - 227](#)
42. [^ Desmond & Moore 1991](#), pp. 160 - 168, 182
[Darwin 1887](#), p. [260](#)
43. [^ ^a ^b Darwin 1958](#), p [98 - 99](#)
44. [^ ^a ^b Keynes 2001](#), pp. [356 - 357](#)
45. [^ Sulloway 1982](#), p. 19
46. [^ ^a ^b "Darwin Online: Coccoatoos & Crows: An introduction to the Sydney Notebook"](#).
http://darwin-online.org.uk/EditorialIntroductions/Chancellor_fieldNotebooks1.3.html. Retrieved 2009-01-02.
47. [^ Keynes 2001](#), pp. [398 - 399](#).
48. [^ "Darwin Correspondence Project - Letter 301 — Darwin, C.R. to Darwin, C.S., 29 Apr 1836"](#).
<http://www.darwinproject.ac.uk/darwinletters/calendar/entry-301.html>.
49. [^ Browne 1995](#), p. 336
50. [^ ^a ^b van Wyhe 2007](#), p. [197](#)
51. [^ Keynes 2000](#), pp. [xix - xx](#)
[Eldredge 2006](#)
52. [^ Darwin 1859](#), p. [1](#)
53. [^ Darwin 1835](#), [editorial introduction](#)
54. [^ Desmond & Moore 1991](#), pp. 195 - 198
55. [^ Owen 1840](#), pp. [16](#), [73](#), [106](#)
[Eldredge 2006](#)
56. [^ Desmond & Moore 1991](#), pp. 201 - 205.
[Browne 1995](#), pp. 349 - 350
57. [^ Browne 1995](#), pp. 345 - 347
58. [^ Desmond & Moore 1991](#), pp. 207 - 210
[Sulloway 1982](#), pp. 20 - 23

59. ^ ["Darwin Correspondence Project - Letter 346 — Darwin, C. R. to Darwin, C. S., 27 Feb 1837"](#).
<http://www.darwinproject.ac.uk/darwinletters/calendar/entry-346.html>. Retrieved 2008-12-19. proposes a move on Friday 3 March 1837, Darwin's Journal ([Darwin 2006](#), p. [12 verso](#)) backdated from August 1838 gives a date of 6 March 1837
60. ^ [Desmond & Moore 1991](#), pp. 201, 212 - 221
61. ^ [Sulloway 1982](#), pp. 20 - 23
62. ^ [Browne 1995](#), p. 360
["Darwin, C. R. \(Read 14 March 1837\) Notes on Rhea americana and Rhea darwinii, *Proceedings of the Zoological Society of London*"](#).
<http://darwin-online.org.uk/content/frameset?itemID=F1643&viewtype=text&pageseq=1>. Retrieved 2008-12-17.
63. ^ [Herbert 1980](#), pp. [7 - 10](#)
[van Wyhe 2008b](#), p. 44
[Darwin 1837](#), pp. [1 - 13](#), [26](#), [36](#), [74](#)
[Desmond & Moore 1991](#), pp. 229 - 232
64. ^ [UK CPI](#) inflation numbers based on data available from [Measuring Worth: UK CPI](#).
65. ^ [Browne 1995](#), pp. 367 - 369
66. ^ [Desmond & Moore 1991](#), pp. 233 - 234
["Darwin Correspondence Project - Letter 404 — Buckland, William to Geological Society of London, 9 Mar 1838"](#).
<http://www.darwinproject.ac.uk/darwinletters/calendar/entry-404.html>. Retrieved 2008-12-23.
67. ^ [Desmond & Moore 1991](#), pp. 233 - 236.
68. ^ [Desmond & Moore 1991](#), pp. 241 - 244, 426
69. ^ [Browne 1995](#), p. xii
70. ^ [Desmond & Moore 1991](#), pp. 241 - 244
71. ^ [Desmond & Moore 1991](#), pp. 252, 476, 531
[Darwin 1958](#), p. [115](#)
72. ^ [Desmond & Moore 1991](#), p. 254
[Browne 1995](#), pp. 377 - 378
[Darwin 1958](#), p. [84](#)
73. ^ [Darwin 1958](#), pp. [232 - 233](#)
74. ^ [Desmond & Moore 1991](#), pp. 256 - 259
75. ^ [Darwin 1958](#), p. [120](#)
76. ^ [Desmond & Moore 1991](#), pp. 264 - 265
[Browne 1995](#), pp. 385 - 388
[Darwin 1842](#), p. [7](#)
77. ^ ["Darwin transmutation notebook E p. 75"](#).
<http://darwin-online.org.uk/content/frameset?viewtype=text&itemID=CUL-DAR124.-&pageseq=63>. Retrieved 2009-03-17.

78. [^] ["Darwin transmutation notebook E p. 71"](http://darwin-online.org.uk/content/frameset?viewtype=text&itemID=CUL-DAR124.-&pageseq=61).
<http://darwin-online.org.uk/content/frameset?viewtype=text&itemID=CUL-DAR124.-&pageseq=61>. Retrieved 2009-03-17.
79. ^{^ a b c} ["Darwin Correspondence Project - Belief: historical essay"](http://www.darwinproject.ac.uk/content/view/130/125/).
<http://www.darwinproject.ac.uk/content/view/130/125/>. Retrieved 2008-11-25.
80. [^] [Desmond & Moore 1991](#), pp. 272 - 279
81. [^] [Desmond & Moore 1991](#), p. 279
82. [^] [Darwin 1958](#), p. 120
83. [^] ["Darwin Correspondence Project - Letter 419 — Darwin, C. R. to Fox, W. D., \(15 June 1838\)"](#).
<http://www.darwinproject.ac.uk/darwinletters/calendar/entry-419.html>. Retrieved 2008-02-08.
84. [^] [van Wyhe 2007](#), pp. 186 - 192
85. [^] [Darwin 1887](#), p. 32.
86. [^] [Desmond & Moore 1991](#), p. 292
87. [^] [Desmond & Moore 1991](#), pp. 292 - 293
[Darwin 1842](#), pp. xvi - xvii
88. [^] [Darwin 1954](#), p. 114
89. [^] [van Wyhe 2007](#), pp. 183 - 184
90. [^] ["Darwin Correspondence Project - Letter 729 — Darwin, C. R. to Hooker, J. D., \(11 January 1844\)"](#).
<http://www.darwinproject.ac.uk/darwinletters/calendar/entry-729.html#back-mark-729.f6>. Retrieved 2008-02-08.
91. [^] ["Darwin Correspondence Project - Letter 734 — Hooker, J. D. to Darwin, C. R., 29 January 1844"](#).
<http://www.darwinproject.ac.uk/darwinletters/calendar/entry-734.html>. Retrieved 2008-02-08.
92. [^] [Darwin 1887](#), pp. 114 - 116
93. [^] [van Wyhe 2007](#), p. 188
94. [^] [Browne 1995](#), pp. 461-465
95. [^] ["Darwin Correspondence Project - Letter 814 — Darwin, C. R. to Hooker, J. D., \(7 Jan 1845\)"](#).
<http://www.darwinproject.ac.uk/darwinletters/calendar/entry-814.html#back-mark-814.f5>. Retrieved 2008-11-24.
96. [^] [van Wyhe 2007](#), pp. 190 - 191
97. [^] [Desmond & Moore 1991](#), pp. 320 - 323, 339 - 348
98. [^] ["Darwin Correspondence Project - Letter 1236 — Darwin, C. R. to Hooker, J. D., 28 Mar 1849"](#).
<http://www.darwinproject.ac.uk/darwinletters/calendar/entry-1236.html>. Retrieved 2008-11-24.
99. [^] [Browne 1995](#), pp. 498 - 501
100. [^] [Darwin 1954](#), pp. 117 - 118
101. [^] [Desmond & Moore 1991](#), pp. 383 - 387

102. ^ [Desmond & Moore 1991](#), pp. 419 – 420
103. ^ [Desmond & Moore 1991](#), pp. 412 – 441, 457 – 458, 462 – 463
104. ^ [Desmond & Moore 1991](#), pp. 466 – 470
105. ^ [Browne 2002](#), pp. 40 – 42, 48 – 49
106. ^ [Darwin 1958](#), p. [122](#)
107. ^ [Desmond & Moore 1991](#), pp. 374 – 474
108. ^ [Desmond & Moore 1991](#), p. 477
109. ^ [Darwin 1859](#), p [459](#)
110. ^ [Darwin 1859](#), p [490](#)
111. ^ [Darwin 1859](#), p [5](#)
112. ^ [Darwin 1859](#), p [492](#)
113. ^ ^{a b} [Browne 2002](#), pp. 373 – 379
114. ^ [van Wyhe 2008b](#), p. 48
115. ^ [Browne 2002](#), pp. 103 – 104, 379
116. ^ [Darwin 1859](#), p. [488](#)
117. ^ [Browne 2002](#), p. 87
- [Leifchild 1859](#)
118. ^ [Desmond & Moore 1991](#), pp. 477 – 491
119. ^ [Browne 2002](#), pp. 110 – 112
120. ^ [Bowler 2003](#), p. 186
121. ^ ^{a b c d} ["Darwin and design: historical essay"](#). Darwin Correspondence Project. 2007.
<http://www.darwinproject.ac.uk/content/view/110/104/>. Retrieved 2008-09-17.
122. ^ [Desmond & Moore 1991](#), pp. 487 – 488, 500
123. ^ ^{a b} [Miles 2001](#)
124. ^ [Bowler 2003](#), p. 185
125. ^ [Browne 2002](#), pp. 156 – 159
126. ^ ^{a b} [Browne 2002](#), pp. 217 – 226
127. ^ ["Darwin Correspondence Project – Letter 4652 — Falconer, Hugh to Darwin, C. R., 3 Nov \(1864\)"](#).
<http://www.darwinproject.ac.uk/darwinletters/calendar/entry-4652.html>. Retrieved 2008-12-01.
128. ^ ["Darwin Correspondence Project – Letter 4807 — Hooker, J. D. to Darwin, C. R., \(7 – 8 Apr 1865\)"](#).
<http://www.darwinproject.ac.uk/darwinletters/calendar/entry-4807.html#mark-4807.f8>. Retrieved 2008-12-01.
129. ^ [Bowler 2003](#), p. 196
130. ^ [Desmond & Moore 1991](#), pp. 507 – 508
[Browne 2002](#), pp. 128 – 129, 138
131. ^ [van Wyhe 2008b](#), pp. 50 – 55
132. ^ [Darwin Correspondence Project: Introduction to the Correspondence of Charles Darwin, Volume 14](#). Cambridge University Press. Retrieved on 2008-11-28

133. [^] [Smith 1999](#).
134. [^] [Freeman 1977](#), p. [122](#)
135. [^] [Darwin 1871](#), pp. [385 - 405](#)
[Browne 2002](#), pp. 339 - 343
136. [^] [Browne 2002](#), pp. 359 - 369
[Darwin 1887](#), p. [133](#)
137. [^] [Darwin 1871](#), p. [405](#)
138. [^] [Browne 2002](#), pp. 495 - 497
139. [^] [Bowler 2003](#), pp. 222 - 225
[van Wyhe 2008](#)
[Darwin 1872](#), p. [421](#)
140. [^] ^{a b} [van Wyhe 2008b](#), p. 41
141. [^] [Desmond & Moore 1991](#), p. 447.
142. [^] [Leff 2000](#), [Darwin's Children](#)
143. [^] ["List of Fellows of the Royal Society / 1660 - 2006 / A-J"](#)
(PDF). <http://royalsociety.org/trackdoc.asp?id=4274&pId=1727>.
Retrieved 2009-09-16.
144. [^] [O'Connor, John J.; Robertson, Edmund F., "Charles Darwin",](#)
[MacTutor History of Mathematics archive,](#)
<http://www-history.mcs.st-andrews.ac.uk/Biographies/Darwin.html>
145. [^] [Edwards, A. W. F. 2004. Darwin, Leonard \(1850 - 1943\). In:](#)
[Oxford Dictionary of National Biography](#), Oxford University Press.
146. [^] ^{a b} [Darwin 1958](#), pp. [85 - 96](#)
147. [^] [von Sydow 2005](#), pp. 8 - 14
148. [^] [von Sydow 2005](#), pp. 4 - 5
149. [^] [Moore 2006](#)
150. [^] ["Darwin Correspondence Project - Darwin and the church:](#)
[historical essay"](#).
<http://www.darwinproject.ac.uk/content/view/152/144/>. Retrieved
2009-01-04.
151. [^] ^{a b} [Letter 12041](#) — Darwin, C. R. to Fordyce, John, 7 May 1879
152. [^] [Darwin's Complex loss of Faith](#) [The Guardian](#) 17-Sept-2009
153. [^] [Moore 2005](#)
[Yates 2003](#)
154. [^] [Darwin, Emma \(1882\). "\[Reminiscences of Charles Darwin's](#)
[last years. CUL-DAR210.9\]"](#).
<http://darwin-online.org.uk/content/frameset?viewtype=side&itemID=CUL-DAR210.9&pageseq=16>. Retrieved 2009-01-08.
155. [^] [Desmond & Moore 1991](#), pp. 556 - 557, 572, 598
[Darwin 1871](#), pp. [167 - 173](#), [402 - 403](#)
["Correspondence between Francis Galton and Charles Darwin"](#).
<http://www.galton.org/letters/darwin/correspondence.htm>.
Retrieved 2008-11-08.

156. ^{a b} [Wilkins 1997](#)
[Moore 2006](#)
157. ^a [Sweet 2004](#)
158. ^a [Flew, Antony](#) (1997). *Darwinian Evolution* (2 ed.). Piscataway, NJ: Transaction. ISBN 1-56000-948-9. "...there seem to be absolutely no grounds for pillorying Darwin as a racist. On the contrary... he shared...principled hatred...for Negro slavery"
159. ^a [Wilkins 2008](#), pp. 408 - 413
160. ^a [Vandermassen, Griet](#) (2004). "[Sexual Selection: A Tale of Male Bias and Feminist Denial](#)". *European Journal of Women's Studies* 11 (9): 11 - 13. doi:10.1177/1350506804039812.
<http://ejw.sagepub.com/cgi/content/abstract/11/1/9>. Retrieved 2009-11-24.
161. ^a [Barta, Tony](#) (2 June 2005). "[Mr Darwin's shooters: on natural selection and the naturalizing of genocide](#)". *Patterns of Prejudice, Volume 39, Issue 2*. Routledge. pp. 116 - 137.
doi:10.1080/00313220500106170.
<http://www.informaworld.com/smpp/section?content=a713721865&fulltext=713240928>. Retrieved 2009-05-20.
162. ^a [Paul 2003](#), pp. 223 - 225
163. ^a [Bannister 1989](#)
164. ^a [Paul 2003](#)
[Kotzin 2004](#)
165. ^a [FitzRoy 1839](#), pp. 216 - 8
166. ^a [Leff 2000](#), [Darwin's Timeline](#)
167. ^a [Charles Darwin](#) in the [BC Geographical Names Information System](#)
168. ^{a b} "[Territory origins](#)". Northern Territory Department of Planning and Infrastructure, Australia. Archived from [the original](#) on 2006-09-18.
<http://web.archive.org/web/20060918153343/http://www.ipe.nt.gov.au/whatwedo/landinformation/place/origins/palmdarwin.html>. Retrieved 2006-12-15.
169. ^a "[Charles Darwin University Homepage](#)".
<http://www.cdu.edu.au/>. Retrieved 2006-12-15.
170. ^a [Charles Darwin National Park](#). Northern Territory, Australia Government. Retrieved on 2006-12-15.
171. ^a [Darwin College:About Darwin](#). Darwin College, Cambridge University website. Retrieved on 2006-12-10.
172. ^a "[Charles Darwin 200 years - Things you didn't know about Charles Darwin](#)". <http://www.darwinfacts.com/>. Retrieved 2009-05-23.
173. ^a [Christine McGourty](#) (19 May 2009). "[Science & Environment; Scientists hail stunning fossil](#)". BBC News.

- <http://news.bbc.co.uk/2/hi/science/nature/8057465.stm>.
Retrieved 2009-05-20.
174. [^] [Sulloway 1982](#), pp. 45 - 47
175. [^] [Hart 2000](#), pp. 82ff
176. [^] [Ten greatest Britons chosen](#), BBC News, 20 October 2002, <http://news.bbc.co.uk/2/hi/entertainment/2341661.stm>, retrieved 2009-08-18
177. [^] ["How to join the noteworthy."](#) *BBC News* (7 November 2000). Retrieved on 2006-12-15.
178. [^] Lewis Smith (3 January 2009). ["Mockingbird goes back to its origins in honour of Charles Darwin - Times Online"](#). <http://www.timesonline.co.uk/tol/news/environment/article5434999.ece>. Retrieved 2009-02-13.
179. [^] [Darwin Awards](#). *DarwinAwards.com*. Retrieved on 2007-12-11.
180. [^] ["Darwin Online: Darwin 2009 commemorations around the world"](#). Darwin Online. <http://darwin-online.org.uk/2009.html>. Retrieved 2008-11-23.
181. [^] ["Darwin | American Museum of Natural History"](#). *Meet the curator*. <http://www.amnh.org/exhibitions/darwin/curator/#>. Retrieved 2008-11-28.
182. [^] ["Darwin 200: Celebrating Charles Darwin's bicentenary"](#). *Natural History Museum*. <http://www.darwin200.org/>. Retrieved 2008-11-23.
183. [^] ["Palazzo delle Esposizioni"](#). *Darwin 1809 - 2009, A cura di Niles Eldredge, Ian Tattersall e Telmo Pievani*. <http://www.palazzoesposizione.it/canale.asp?id=236>. Retrieved 2009-02-22.
184. [^] ["Darwin 2009 - The Festival"](#). *University of Cambridge*. <http://www.darwin2009.cam.ac.uk/>. Retrieved 2008-11-23.
185. [^] ["Darwin's Shrewsbury 2009 Festival, Birthplace, History and Information"](#). <http://www.darwinshrewsbury.org/>. Retrieved 2008-12-16.
186. [^] ["House of Commons Hansard Ministerial Statements for 12 July 2007"](#). <http://www.publications.parliament.uk/pa/cm200607/cmhansrd/cm070712/wmstext/70712m0001.htm>. Retrieved 2008-11-23.
187. [^] ["Good religion needs good science"](#) Rev Dr Malcolm Brown, Director of Mission and Public Affairs, Church of England. Retrieved 17 September 2008.
188. [^] [Balfour 1882](#)
[van Wyhe 2008](#)
[Anonymous 1882](#)
189. [^] Brummitt, R. K. ; C. E. Powell (1992). *Authors of Plant Names*. *Royal Botanic Gardens, Kew*. ISBN [1-84246-085-4](#).

190. [^ Desmond, Moore & Browne 2004](#)
 191. [^ Darwin 1871](#), pp. [214](#), [232](#).

References

- Anonymous (1882), "[Obituary: Death Of Chas. Darwin](#)", *The New York Times* (21 April 1882),
<http://www.nytimes.com/learning/general/onthisday/bday/0212.html>,
 retrieved 2008-10-30
- Balfour, J. B. (11 May 1882), "[Obituary Notice of Charles Robert Darwin](#)",
Transactions & Proceedings of the Botanical Society of Edinburgh (14):
 284 - 298
- Bannister, Robert C. (1989), *Social Darwinism: Science and Myth in Anglo-American Social Thought.*, Philadelphia: Temple University Press, [ISBN 0-87722-566-4](#)
- Bowler, Peter J. (2003), *Evolution: The History of an Idea* (3rd ed.), University of California Press, [ISBN 0-520-23693-9](#)
- [Browne, E. Janet](#) (1995), *Charles Darwin: vol. 1 Voyaging*, London: Jonathan Cape, [ISBN 1-84413-314-1](#)
- [Browne, E. Janet](#) (2002), *Charles Darwin: vol. 2 The Power of Place*, London: Jonathan Cape, [ISBN 0-7126-6837-3](#)
- Darwin, Charles (1835), [Extracts from letters to Professor Henslow](#), Cambridge: [privately printed],
<http://darwin-online.org.uk/content/frameset?itemID=F1&viewtype=text&pageseq=1>, retrieved 2008-11-01
- Darwin, Charles (1837), [Notebook B: \[Transmutation of species\]](#), Darwin Online, CUL-DAR121,
<http://darwin-online.org.uk/content/frameset?viewtype=side&itemID=CUL-DAR121.-&pageseq=1>, retrieved 2008-12-20
- Darwin, Charles (1839), [Narrative of the surveying voyages of His Majesty's Ships Adventure and Beagle between the years 1826 and 1836, describing their examination of the southern shores of South America, and the Beagle's circumnavigation of the globe. Journal and remarks. 1832 - 1836., III](#), London: Henry Colburn,
<http://darwin-online.org.uk/content/frameset?itemID=F10.3&viewtype=text&pageseq=1>, retrieved 2008-10-24
- Darwin, Charles (1842), "[Pencil Sketch of 1842](#)", in [Darwin, Francis, The foundations of The origin of species: Two essays written in 1842 and 1844.](#), Cambridge University Press, 1909,
<http://darwin-online.org.uk/content/frameset?viewtype=text&itemID=F1556&pageseq=33>
- Darwin, Charles (1845), [Journal of researches](#) into the natural history and geology of the countries visited during the voyage of H. M. S. Beagle

round the world, under the Command of Capt. Fitz Roy, R.N. 2d edition, London: John Murray,

<http://darwin-online.org.uk/content/frameset?itemID=F20&viewtype=text&pageseq=1>, retrieved 2008-10-24

- Darwin, Charles; Wallace, Alfred Russel (1858), *On the Tendency of Species to form Varieties; and on the Perpetuation of Varieties and Species by Natural Means of Selection*, Zoology 3, Journal of the Proceedings of the Linnean Society of London, pp. 46 - 50
- Darwin, Charles (1859), *On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life* (1st ed.), London: John Murray,
<http://darwin-online.org.uk/content/frameset?itemID=F373&viewtype=text&pageseq=1>, retrieved 2008-10-24
- Darwin, Charles (1868), *The variation of animals and plants under domestication*, London: John Murray,
<http://darwin-online.org.uk/content/frameset?itemID=F880.1&viewtype=text&pageseq=1>, retrieved 2008-11-01
- Darwin, Charles (1871), *The Descent of Man, and Selection in Relation to Sex* (1st ed.), London: John Murray,
<http://darwin-online.org.uk/EditorialIntroductions/FreemanTheDescentofMan.html>, retrieved 2008-10-24
- Darwin, Charles (1872), *The Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life* (6th ed.), London: John Murray,
<http://darwin-online.org.uk/content/frameset?itemID=F391&viewtype=text&pageseq=1>, retrieved 2009-11-01
- Darwin, Charles (1887), Darwin, Francis, ed., *The life and letters of Charles Darwin, including an autobiographical chapter*, London: John Murray,
<http://darwin-online.org.uk/EditorialIntroductions/FreemanLifeandLettersandAutobiography.html>, retrieved 2008-11-04
- Darwin, Charles (1958), Barlow, Nora, ed., *The Autobiography of Charles Darwin 1809 - 1882*. With the original omissions restored. Edited and with appendix and notes by his granddaughter Nora Barlow, London: Collins,
<http://darwin-online.org.uk/EditorialIntroductions/FreemanLifeandLettersandAutobiography.html>, retrieved 2008-11-04
- Darwin, Charles (2006), "Journal", in van Wyhe, John, [*Darwin's personal 'Journal' (1809-1881)*], Darwin Online, CUL-DAR158.1-76,
<http://darwin-online.org.uk/content/frameset?viewtype=side&itemID=CUL-DAR158.1-76&pageseq=1>, retrieved 2008-12-20
- Desmond, Adrian; Moore, James (1991), *Darwin*, London: Michael Joseph, Penguin Group, [ISBN 0-7181-3430-3](http://www.penguin.com/ISBN/0-7181-3430-3)

- Desmond, Adrian; [Moore, James](#); Browne, Janet (2004), *Oxford Dictionary of National Biography*, Oxford, England: Oxford University Press, doi:[10.1093/ref:odnb/7176](https://doi.org/10.1093/ref:odnb/7176)
- [Dobzhansky, Theodosius](#) (March 1973), "[Nothing in Biology Makes Sense Except in the Light of Evolution](#)", *The American Biology Teacher* **35**: 125 - 129, <http://www.2think.org/dobzhansky.shtml>, retrieved 2008-11-04
- [Eldredge, Niles](#) (2006), "[Confessions of a Darwinist](#)", *The Virginia Quarterly Review* (Spring 2006): 32 - 53, <http://www.vqronline.org/articles/2006/spring/eldredge-confession-s-darwinist/>, retrieved 2008-11-04
- [FitzRoy, Robert](#) (1839), *Voyages of the Adventure and Beagle, Volume II*, London: Henry Colburn, <http://darwin-online.org.uk/content/frameset?itemID=F10.2&viewtype=text&pageseq=1>, retrieved 2008-11-04
- Freeman, R. B. (1977), *The Works of Charles Darwin: An Annotated Bibliographical Handlist*, Folkestone: Wm Dawson & Sons Ltd, <http://darwin-online.org.uk/content/frameset?itemID=A1&viewtype=text&pageseq=1>, retrieved 2008-11-04
- [Hart, Michael H.](#) (2000), *The 100: A Ranking of the Most Influential Persons in History*, New York: Citadel
- Herbert, Sandra (1980), "[The red notebook of Charles Darwin](#)", *Bulletin of the British Museum (Natural History)*, Historical Series (7 (24 April)): 1 - 164, <http://darwin-online.org.uk/content/frameset?viewtype=text&itemID=F1583e&pageseq=1>, retrieved 2009-01-11
- Herbert, Sandra (1991), "[Charles Darwin as a prospective geological author](#)", *British Journal for the History of Science* (24): 159 - 192, <http://darwin-online.org.uk/content/frameset?viewtype=text&itemID=A342&pageseq=1>, retrieved 2008-10-24
- [Keynes, Richard](#) (2000), *Charles Darwin's zoology notes & specimen lists from H. M. S. Beagle.*, Cambridge University Press, <http://darwin-online.org.uk/content/frameset?itemID=F1840&viewtype=text&pageseq=1>, retrieved 2008-11-22
- [Keynes, Richard](#) (2001), *Charles Darwin's Beagle Diary*, Cambridge University Press, <http://darwin-online.org.uk/content/frameset?itemID=F1925&viewtype=text&pageseq=1>, retrieved 2008-10-24
- Kotzin, Daniel (2004), *Point-Counterpoint: Social Darwinism*, Columbia American History Online, <http://caho-test.cc.columbia.edu/pcp/14008.html>, retrieved 2008-11-22
- Leff, David (2000), *AboutDarwin.com* (2000 - 2008 ed.), <http://www.aboutdarwin.com/index.html>, retrieved 2008-12-30

- Leifchild (1859), "[Review of `Origin`](#)", *Athenaeum* (No. 1673, 19 November 1859),
<http://darwin-online.org.uk/content/frameset?viewtype=image&itemID=CUL-DAR226.1.8&pageseq=1>, retrieved 2008-11-22
- Miles, Sara Joan (2001), "[Charles Darwin and Asa Gray Discuss Teleology and Design](#)", *Perspectives on Science and Christian Faith* **53**: 196 - 201,
<http://www.asa3.org/ASA/PSCF/2001/PSCF9-01Miles.html>, retrieved 2008-11-22
- [Moore, James](#) (2005) (PDF), *Darwin — A 'Devil's Chaplain'?*, American Public Media,
<http://speakingoffaith.publicradio.org/programs/darwin/moore-devilschaplain.pdf>, retrieved 2008-11-22
- [Moore, James](#) (2006), *Evolution and Wonder — Understanding Charles Darwin*, Speaking of Faith (Radio Program), American Public Media,
<http://speakingoffaith.publicradio.org/programs/darwin/transcript.shtml>, retrieved 2008-11-22
- [Owen, Richard](#) (1840), Darwin, C. R., ed., *Fossil Mammalia Part I*, The zoology of the voyage of H. M. S. Beagle, London: Smith Elder and Co
- Paul, Diane B. (2003), "Darwin, social Darwinism and eugenics", in Hodge, Jonathan; Radick, Gregory, *The Cambridge Companion to Darwin*, Cambridge University Press, pp. 214 - 239, [ISBN 0-521-77730-5](#)
- Smith, Charles H. (1999), *Alfred Russel Wallace on Spiritualism, Man, and Evolution: An Analytical Essay*,
<http://www.wku.edu/~smithch/essays/ARWPAMPH.htm>, retrieved 2008-12-07
- [Sulloway, Frank J.](#) (1982), "[Darwin and His Finches: The Evolution of a Legend](#)" (PDF), *Journal of the History of Biology* **15** (1): 1 - 53, [doi:10.1007/BF00132004](#), <http://www.sulloway.org/Finches.pdf>, retrieved 2008-12-09
- Sweet, William (2004), *Herbert Spencer*, Internet Encyclopedia of Philosophy, <http://www.iep.utm.edu/spencer/>, retrieved 2008-12-16
- Wilkins, John S. (1997), *Evolution and Philosophy: Does evolution make might right?*, [TalkOrigins Archive](#),
<http://www.talkorigins.org/faqs/evolphil/social.html>, retrieved 2008-11-22
- Wilkins, John S. (2008), "Darwin", in Tucker, Aviezer, *A Companion to the Philosophy of History and Historiography*, Blackwell Companions to Philosophy, Chichester: Wiley-Blackwell, pp. 405 - 415, [ISBN 1-4051-4908-6](#)
- van Wyhe, John (27 March 2007), "[Mind the gap: Did Darwin avoid publishing his theory for many years?](#)", *Notes and Records of the Royal Society* **61**: 177 - 205, [doi:10.1098/rsnr.2006.0171](#),
<http://darwin-online.org.uk/content/frameset?viewtype=text&itemID=A544&pageseq=1>, retrieved 2008-02-07

- van Wyhe, John (2008), *Charles Darwin: gentleman naturalist: A biographical sketch*, Darwin Online, <http://darwin-online.org.uk/darwin.html>, retrieved 2008-11-17
- van Wyhe, John (2008b), *Darwin: The Story of the Man and His Theories of Evolution*, London: Andre Deutsch Ltd (published 1 September 2008), ISBN 0-233-00251-0
- von Sydow, Momme (2005), "[Darwin - A Christian Undermining Christianity? On Self-Undermining Dynamics of Ideas Between Belief and Science](#)", in Knight, David M. ; Eddy, Matthew D., *Science and Beliefs: From Natural Philosophy to Natural Science, 1700 - 1900*, Burlington: Ashgate, pp. 141 - 156, ISBN 0-7546-3996-7, [http://www.psych.uni-goettingen.de/abt/1/sydow/von_Sydow_\(2005\)_Darwin_A_Christian_Undermining_Christianity.pdf](http://www.psych.uni-goettingen.de/abt/1/sydow/von_Sydow_(2005)_Darwin_A_Christian_Undermining_Christianity.pdf), retrieved 2008-12-16
- Yates, Simon (2003), *The Lady Hope Story: A Widespread Falsehood*, TalkOrigins Archive, <http://www.talkorigins.org/faqs/hope.html>, retrieved 2006-12-15