

## **nCharles Darwin**

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Charles Robert Darwin was born February 12<sup>th</sup>, 1809 in Shropshire England, the fifth child of six to Robert and Susannah Darwin. Although Darwin is best known for his work as a naturalist, he had an early interest in medicine working with his father treating the poor in the village of his birth. Though he enrolled in medical school, he found the study of taxidermy more engaging than his medical studies. His interest soon shifted towards natural history, to the cataloging of beetles and eventually geology. He subsequently dropped the pursuit of medicine to finishing his coursework to become an Anglican country parson instead. Before that could happen, an opportunity presented itself to allow him to pursue his scientific interests that he simply couldn't pass up.

Darwin's contribution to zoology was precipitated by his five year journey as a member of the crew of the HMS Beagle around South America, Australia, Indonesia and South Africa. During the journey, Darwin collected a number of animal specimens and catalogued a range of geological formations. His encounters with an assortment of fossils from extinct animals allowed him to begin questioning more traditional notions of the time regarding the immutability of species. In addition, his experiences with the various cultures he encountered over the journey further fueled his belief that all humans might share a common ancestry despite the almost irreconcilable physical and social differences he observed.

Upon his return to England, his zoological work already made him a celebrity among natural scientists. With the help of his father, they secured the funds to allow Darwin to pursue his passion for science in general and the cataloguing of his voluminous collection in particular. In collaboration with a number of other established biologists, Darwin made the realization that what he had originally thought were multiple variants of one species of finch were in fact from at least a dozen separate species inhabiting neighboring but discrete islands. This degree of speciation from finches separated by geography led him to entertain the possibility that one species may over time “change” into another. Similar observations across multiple types of animals forced him to map their genealogical branching of a number of species from a single evolutionary tree.

Darwin eventually published his “big book on species” detailing his meticulous observations and conclusions about the nature of change in species over time much sooner than originally planned. Alfred Russel Wallace independently came to similar conclusions as Darwin regarding speciation forcing him to publish his findings along with Wallace’s simultaneously. Darwin’s “On the Origin of Species” was published in 1859 to international interest and sparking innumerable debate.

Though Darwin is often considered to have originated the theory of evolution, this notion preceded him. Instead, his major contribution was the notion of natural selection as the driving force behind the theory of evolution. Specifically, natural selection posits that spontaneous variations within a species would lead to certain characteristics being favored by the environment naturally and that these inherited advantages would be more likely to be passed down across generations. Over time, these traits will differentiate a species from others through the factors entirely determined by the natural environment, hence Natural Selection. This conceit

in contrasted by the notion of artificial selection wherein humans chose certain traits to passed down across generations of animals (as observed in dogs for example) leading to large differences over time.

Charles Darwin died on April 19<sup>th</sup>, 1882 at the age of 73 due to heart failure, perhaps as a results of a disease he'd contracted in Argentina in his youth. Although his conclusions remain a matter of intense debate over 150 years after the publication of his Origin of Species, they have yet to be superseded or replaced, but instead elaborated upon. Moreover, his contributions have stretched beyond biology to have influenced almost every domain of science and the humanities. The fact that he managed to eloquently intuit the mechanisms of heritability without knowing about DNA or even genes for that matter is all the more awe-inspiring. It's worth pointing out that it took almost a century to find common ground between the tenets of evolutionary theory and genetics. In conclusion, he is also remembered though for his gentle demeanor, kindness and his steadfast mentoring of less established scholars and budding scientists the entire world over.