

Born on February 12th, 1809 in the village of Shrewsbury, England, Charles Robert Darwin was the descendant of a long line of physicians, philosophers, and artisans.¹ The young Darwin's traits frustrated his overbearing father,² but combined to form the character of the man who would become the most important scientist of the nineteenth century. Along with the ideas of Freud and Marx, his contributions to society and science would form the primary foundations for twentieth century thought.³

As a child, Darwin was bored by the classical lessons taught at the Unitarian Grammar School, and preferred to spend his time collecting rocks, stamps, and beetles. Following in the tradition of his family, Darwin enrolled at University College in London with the intent of becoming a physician. Although he did not enjoy his lessons, he was a naturally gifted scholar and achieved excellent grades. As it became clear that he had no interest in pursuing his father's career path, the elder Darwin suggested that he enroll in the priesthood at Cambridge. To the dismay of his father, Darwin disliked theology even more than he had the sciences at University College.⁴ During his stay at Cambridge, Darwin made an impression on geologist John Stevens Henslow, who provided him with an introduction

1 Samuel Parkes Cadman, *Charles Darwin and Other English Thinkers* (Freeport: Books for Libraries Press, 1911), 3-4

2 John Merriman, *A History of Modern Europe, Vol II, Third Ed.* (New York: W.W. Norton & Company, 2009), 687

3 Merriman, 809

4 Cadman, 5-8

to Robert Fitz-Roy, captain of the H.M.S Beagle.⁵

The voyage of the Beagle lasted almost five years, from December of 1831 until October of 1836, and became the base upon which the rest of Darwin's illustrious career was built. On a mission to circumnavigate the world and survey the coasts of South America, it afforded Darwin plenty of time to explore the islands and rain forests of the southern equator.⁶ The crew encountered native peoples on a number of occasions during their voyage, and by the end of it, Darwin was morally opposed to the practice of slavery, later writing “I thank God, I shall never again visit a slave-country.”⁷

In his later years, Darwin was a dogged and patient scientist who possessed of a child-like curiosity that drove him to constantly question the workings of everything that he encountered.⁸ He was of ruddy complexion, about six feet tall, and completely bald, with a perpetually stooped back and a long beard that he had grown to avoid the burden of shaving.⁹ Throughout his life, Darwin suffered attacks of chronic pain that kept him at home, even though he would have been welcome on the London social scene.¹⁰ Although he did not know the cause of his illness, there is some agreement among modern scientists that

5 Cadman, 8-9

6 L. Robert Stevens, *Charles Darwin* (Boston: Twayne Publishers, 1978), 23

7 Stanley Edgar Hyman, *Darwin for Today* (New York: The Viking Press, 1963), 7

8 Hyman, 16

9 Hyman, 5

10 Cadman, 38

it was a functional or neurotic, rather than an organic ailment.¹¹ Indeed, as a child he had suffered from chronic anxiety, self-doubt, and severe depression, possibly linked to the domineering attitudes and expectations of his father.¹²

Darwin's life ended with a series of heart attacks in 1881 and 1882, culminating with a severe attack that knocked him unconscious on April 18, 1882. Upon awakening, he said that he was not afraid to die, and passed away late in the next afternoon at the age of 73.¹³ The London *Times* carried a report of his death that boldly declared that “the impetus he has given to science... can only find a parallel in [Sir Isaac] Newton”¹⁴

Although his influence on our modern world is formidable, Darwin's primary contribution to was to advance the state of the art of science, particularly in the field of biology. While sailing on the *Beagle*, Darwin encountered fossils that appeared similar to many of the living specimens that he was working to catalogue. In the years after his voyage, he happened to read Reverend Thomas Robert Malthus' *Principles of Population*, which argued that the total population of any geographically confined species was directly proportional to the resources that were available in their habitat. After re-arranging his

11 Hyman, 2

12 Merriman, 687

13 Hyman, 5

14 Stevens, 137

specimens with this idea in mind, Darwin was able to put his own research into a new perspective, and started working on what would become his theory of evolution by means of natural selection. In 1842, he wrote a twenty-five page abstract of the work, but did not publish the full text, entitled *On the Origin of Species*, until 1859.¹⁵

Darwin did not discover evolution; in fact many of his contemporaries already accepted the idea that creatures tended to adapt to their environment over time. Instead, his contribution was to provide the theory of natural selection, a working model that explained the forces that drive the evolutionary process forward. Darwin's work used the scientific method to prove what others had long suspected.¹⁶ By showing that environmental pressures like resource availability and the presence of predators heavily influenced the populations and traits of different species, he was able to provide a working model for evolution that revolutionized all of the sciences, biology in particular.

In the first chapters of *Origin*, Darwin explained the process of natural selection by comparing it to the breeding practices that humans have used to create different types of plants and animals for centuries. Using examples from the worlds of dog and pigeon breeding, Darwin showed that breeders can mold the properties of plants and animals by

15 Cadman, 14-15

16 Cadman, 11-12

artificially selecting for valuable traits.¹⁷ In nature, the human element of the process is replaced by the struggle between creatures, and the ones that possess advantageous characteristics tend to gain an upper hand in the competition for limited resources, defence against predators, and contests for mates. This generally leads to a higher statistical probability of survival, which in turn increases the chance that these improved features will be passed along to the next generation of the species.¹⁸ Thus, the animal variety that is the product of many generations is in fact the one that is most suited for the environmental and resource-based constraints in which it has developed.¹⁹ Indeed, Darwin believed that this process was responsible for the astounding variety of plants and animals on the planet.²⁰ He summed the entire process in an eloquent passage from *Origin*:

“It may be said that natural selection is a daily and hourly scrutinizing, throughout the world, every variation, even the slightest; rejecting that which is bad, preserving and adding up all that is good; silently and insensibly working, whenever and wherever opportunity offers, at the improvement of each organic being in relation to its organic and inorganic conditions of life. We see nothing of these slow changes in progress, until the hand of time has marked the long

17 Richard Dawkins, *The Greatest Show on Earth* (New York: Free Press, 2009), 27-28

18 Cadman, 18

19 Cadman, 20

20 Hyman, 227

lapse of ages, and then so imperfect is our view into long past geological ages, that we see only that the forms of life are now different from what they formerly were.”²¹

British biologist Richard Dawkins has pointed out that a corollary of Darwin's theory is that everything that appears consistently throughout nature must be 'for' something, even if it appears to be wasteful. If not, the process of natural selection would have discarded it for a more advantageous trait or behaviour. Put another way, the only reason for a species to possess some trait or behaviour is that without it, the prospects of genetic success for that species would be decreased.²²

Prior to *Origin*, religion had provided the explanation for many of the mysteries surrounding the creation and evolution of species; Those scientists that were evolutionists lacked a model to explain how the process might work. Evolutionist philosophers had long participated in fruitless debates with theologians regarding the plausibility of the individual creation of the countless variety of animals present in the world, and fossils were explained by way of a series of cataclysmic disasters that God had used to extinguish all life before recreating everything from the start. Scientists who called themselves Uniformitarians

21 Dawkins, *The Greatest Show On Earth*, 64

22 Richard Dawkins, *The God Delusion* (Boston: Houghton Mifflin Company, 2006), 163-164

argued that this theory broke the logical system of laws and patterns that seemed to be in place throughout the rest of the universe.²³ It was Darwin's carefully cataloged and argued paper that put science behind the theory of evolution and started an intellectual revolution on par with those of the Renaissance and the Reformation.²⁴ In the words of contemporary scientist George Silk, "I have read the origin of species through five or six times, each time with increasing admiration. It will live as long as the Principia of Newton. Mr. Darwin has given the world a new science, and his name should in my opinion be above that of every philosopher of ancient or modern times."²⁵

Darwin released his second major work on evolution, *The Descent of Man* in 1871. The new volume dealt specifically with the evolution of mankind, and addressed the problems that natural selection had exposed in the widely observed Biblical creation stories.²⁶ Although many of his contemporary scientists could not deny the overwhelming evidence in favour of man evolving alongside the rest of the animal kingdom, they tended to insist on making special exceptions to differentiate humankind from animals in an effort to afford them special blessings in the eyes of God.²⁷

23 Cadman, 12-13

24 Cadman, 42

25 Cadman, 17

26 Cadman, 31

27 Cadman 30-33

The contribution that Darwin's work made to scientific thinking can hardly be overstated. His theory of natural selection defied the idea of the unchanging human being, and opened the door for social scientists who believed that society could be studied, understood, and improved upon in the same way that industry had capitalized on scientific advances.²⁸ At the same time, his work essentially created the science of ecology, revived and modernized the science of behavioral psychology, made early strides in genetic theory, and profoundly influenced many other fields of study.²⁹ Finally, it changed the way that people regard the natural world around them. In the words of Dawkins, the theory of natural selection is an idea whose “dazzling novelty and power to uplift the human spirit perhaps had no precedent – unless it was the Copernican realization that the Earth was not the centre of the universe.”³⁰

If Darwin's theory of evolution by means of natural selection caused a revolution in the scientific community, it caused what could at times be described as turmoil throughout the rest of society. When he published *On the Origin of Species* in 1859, he helped to reinforce the idealistic Victorian belief in the virtues of hard work and 'rugged

28 Merriman, 804

29 Hyman, 14-15

30 Dawkins, *The God Delusion*, 367

individualism.' At the time, people thought that the ideal man worked hard to demonstrate his moral worth to society, with the best that civilization had to offer naturally rising to the ruling class, and defying the old system of patronage. Middle class Victorians who read *Origin* were infatuated with the idea of competition in which some species survived while others did not because of their relative 'fitness' in the eyes of nature.³¹

By the end of the century, Victorians preoccupied with Darwinian theory and nationalism had turned sports into a major pastime for all classes of people throughout England. Social scientists became increasingly concerned with the comparative characteristics of races and peoples,³² and the bastardized theory of Social Darwinism became popular when contemporary British scientist Herbert Spencer coined the phrase "survival of the fittest." He twisted Darwin's theory of natural selection and began to preach the idea that nations must struggle for their survival in the same manner as species. At the time, the international battle for overseas colonies was increasingly used as the primary metric by which people measured the success of countries on the world stage, leading to the dangerous conclusion that Britons were naturally superior to other nations, especially those whom they had subjugated in Africa and Asia.³³

31 Merriman, 687

32 Merriman, 780-781

33 Merriman, 843

Under the auspices of this theory, the far East was stereotyped as “Mysterious,” Africa as the “Dark Continent,” and the non-white people of both regions as childlike, barbaric, depraved, sneaky, dangerous, diseased, and uncivilized. This racist ideology was adopted by imperial officials in an effort to justify colonialism and the brutalization of indigenous peoples. Meanwhile, businessmen justified their exploitative presence in colonies by claiming to civilize the people that they had dominated. Throughout Africa, people were murdered and enslaved in the name of a colonial movement justified by Social Darwinism; in the United States, the same theory helped to justify the Western expansion and mass slaughter of native peoples.³⁴

In early twentieth century America, Professor of Sociology William Graham Sumner borrowed the theory of Social Darwinism to justify the widening gap between rich and poor, calling the millionaires of the industrial age the “naturally selected agents of society.” This line of thinking reinforced the American ideology of individualism and called for the government to limit itself only to the concern of the 'property of men and the honor of women.'³⁵ In this sense, the contortion of Darwin's theory was of vital importance to the founding of the libertarian and conservative movements of the United States.

34 Merriman, 843-844

35 James A. Henretta & David Brody, *America: A Concise History, Vol II* (Boston: Bedford / St. Martin's, 2010), 556-557

While Darwin's writings helped to define the society that we recognize today, they also played a part in a much larger debate between the secular and religious sects of countries throughout the world. Predictably, contemporary Churchmen were not enthused with Darwin's theories, because they seemed to minimize the importance of God in the creation of the world,³⁶ challenging the Bible and striking a blow against the Church in the name of Science.³⁷ People who misunderstood the theory of natural selection were aghast to think that humans could have descended from apes,³⁸ even though Darwin addressed this fear in his writings: “But we must not fall into the error of supposing that the early progenitor of the whole Simian stock, including man, was identical with, or even closely resembled, any existing ape or monkey.”³⁹

When the first edition of *Origin* was published, Darwin was a confirmed theist who believed in a personal god, but kept his beliefs out of his writings. Later in his personal life, he seemed to drift closer to agnosticism,⁴⁰ while subsequent editions of *Origin* reference a 'God' or 'Creator' where the first edition had invoked nature. In letters to a friend late in his

36 Merriman, 687

37 Cadman, 24

38 Merriman, 804

39 Hyman, 9

40 Cadman, 40

life, Darwin expressed regret for changing his words, leading one to presume that he had done so under pressure from an all-powerful contemporary religious lobby.⁴¹ Indeed, the original notes for his autobiography (censored by his family until well after his death) portray Darwin's view of the Christian religion as “unintelligible,” his belief that the teaching of everlasting damnation is “a damnable doctrine,” and that a belief in God may be compared to a monkey's “instinctive fear and hatred of a snake.”⁴² Instead, Darwin was a confirmed naturalist who found more beauty in the natural world than in religion, saying that “No one with an unbiased mind can study any living creature, however humble, without being struck with enthusiasm and its marvelous structure and properties.”⁴³

Darwin's troubles with religious conservatives extended even to former friends. Robert Fitz-Roy, the captain of the H.M.S. Beagle became a devout Catholic in his later years, and was obsessed with having given Darwin the opportunity to develop his decidedly anti-biblical views. In 1860, at an Oxford meeting of the British Association for a debate on the evolution of species by means of natural selection, Fitz-Roy burst in, waving a Bible and shouting that he had warned Darwin about holding views contrary to the word of God. In 1865, still wracked with remorse over his imagined guilt in the matter, he slit his own

41 Dawkins, *The Greatest Show On Earth*, 403-404

42 Hyman, 1

43 Hyman, 9

throat.⁴⁴ In a similar situation, Darwin turned against early friend and mentor Sir Charles Lyell,⁴⁵ a British geologist who refused to publicly acknowledge his belief in the theory of evolution by means of natural selection late in his life, for fear of being denounced by the religious community. Darwin wrote Lyell a letter in which he scathingly said “You cut my throat, and your own throat; and I believe will live to be sorry for it.”⁴⁶

In the 1920s, cultural conflicts erupted throughout the United States. Modernists and Liberal Protestants had found ways to reconcile their religious beliefs with Darwin's theory of evolution by natural selection, while fundamentalist Baptist and Methodist churches still insisted on a literal reading of the Bible.⁴⁷ Many conservative Christians believed that Darwinism was an inherently nihilistic theory. They sought to purposely misunderstand the scientific method, and spread the idea that Darwinism taught that humans had evolved by blind chance. Just like the Social Darwinists, they contorted the theory of natural selection to further their own ends; in this case, they were seeking a vector on which science could be attacked and painted as morally inferior to their religion.⁴⁸

In 1925, the state of Tennessee enacted a law to ban the teaching of evolution in

44 Hyman, 2

45 Cadman, 10-11

46 Hyman, 4

47 Henretta & Brody, 687-688

48 Dawkins, *The God Delusion*, 214

schools. High school biology teacher John T. Scopes continued to teach evolution by way of natural selection in his classes, and was taken to court by the State in what the press would dub as the Scopes Monkey Trial. The American Civil Liberties Union defended Scopes, painting the law as a violation of the constitutional guarantee of separation of church and state. Scopes was eventually found guilty of teaching evolution, but the Tennessee supreme court overturned the verdict. The law against the teaching of evolution remained on the state law books for over thirty years after the end of the trial.⁴⁹

Even into the 21st century, religious fundamentalists continued to argue against Darwinism and the theory of evolution by way of natural selection being taught in public schools. In place of creationism, they proposed the theory of “intelligent design,” arguing that some biological phenomenon were too complex to be explained by evolution, and must therefore have been designed by an intelligent agent, namely the Christian God. In most cases, they did not want to abolish evolution in schools, but did want to teach intelligent design alongside it as an equally valid scientific proposition. In a federal court case in Dover Pennsylvania, a judge came to a similar conclusion as the Tennessee Supreme Court had almost a century earlier, and declared that intelligent design was “a screen for creationism,” and therefore represented an “unconstitutional intrusion of religion into

49 Henretta & Brody, 687-688

public schools.”⁵⁰

Darwin was aware of the arguments that creationists would use to attack his theory long before they were ever posed, and refuted them elegantly, saying that “if it could be demonstrated that any complex organ existed which could not possibly have been formed by numerous, successive, slight modifications, my theory would absolutely break down. But I can find no such case.”⁵¹ Both he and contemporary scientist George Silk railed out against the idea of an omnipotent creator, saying respectively that “species are produced and exterminated by slowly acting and still existing causes, and not by miraculous acts of creation,”⁵² and that “I entertain no doubt... that the view... that each species has been independently created is erroneous.”⁵³

Charles Darwin is perhaps the most important scientist of modern times. In the words of Richard Dawkins, “Darwin's discovery of a workable process that does that very counter-intuitive thing (makes a big fancy smart thing from a lesser thing without use of an intelligent agent) is what makes his contribution to human thought so revolutionary, and so

50 Henretta & Brody, 962

51 Dawkins, *The God Delusion*, 125

52 Hyman, 230

53 Cadman, 19

loaded with the power to raise consciousness.”⁵⁴ His theory of evolution by means of natural selection not only revolutionized biology, but made a lasting mark on the makeup of society, and contributed for better or for worse to the increasing secularism of the lives of modern-day peoples. A committed scientist above all, he truly dared to question all that his contemporaries took for granted, an attitude that is summed up in a personal reflection to a friend: “It is a golden rule, which I try to follow, to put every fact which is opposed to one's preconceived opinion in the strongest light.”⁵⁵

54 Dawkins, *The God Delusion*, 117

55 Hyman, 17