

# Charles Darwin: The Formative Years (1809-1831)

By Harry Wistrand



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It is widely, but not quite justly, assumed that the ideas Charles Darwin used to develop the concept of evolution by natural selection, published in *The Origin of Species* in 1859, emerged while he was voyaging on the *Beagle* in the Galapagos Islands. Scholars who have studied Darwin's life have recently brought our attention to the ways his upbringing, his nature, and the serendipitous events of his educational period contributed to the development of his theory.

Charles Robert Darwin came from two distinguished families, had several characteristics different from his siblings, and with his kind nature and strong and disciplined curiosity, he took advantage of several fortuitous circumstances. Born in Shrewsbury, England, on February 12, 1809 (the same day as Abraham Lincoln), he was the fifth of six children born to Dr. Robert and Susannah (Wedgewood) Darwin and was named after his uncle, who died at the age of 19 of an infection after cutting himself during an autopsy in medical school. His mother died when he was eight and a half, and he was subsequently tutored and spoiled by his older sisters (19, 16, and 13 at the time of his mother's death). He was very fond of his older brother, Erasmus (Ras), and they remained close throughout their lives.

## His Ancestry

Both of Darwin's grandfathers died before his birth. Susannah Darwin's father was Josiah Wedgewood (1730-95), who developed the series of glazes and firings that resulted in the popular Wedgewood ware, the cream version of which was purchased by the royal household for Queen Charlotte (wife of George III) in 1765. Wedgewood was given permission to use the title "Potter to Her Majesty." Darwin's uncle was Josiah II, the father of Darwin's wife, Emma. Josiah II was the friend of Samuel Taylor Coleridge who, along with his brother Thomas, gave him lifetime income beginning in 1798 so that he could leave his ministry in the Unitarian Church and focus on his writing.

Darwin's paternal grandfather was Dr. Erasmus Darwin (1731-1802), a major intellectual force of his time. Educated at Cambridge University and the University of Edinburgh Medical School, he was asked to become the Royal Physician by George III, but declined as he did not wish to move from his home in Lichfield. He was friends with a number of distinguished men, including Josiah Wedgewood, Joseph Priestley, and James Watt. A close friend was Dr. William Small, who had taught

Thomas Jefferson science at the College of William and Mary. He also knew Benjamin Franklin and Jean-Jacques Rousseau. An agnostic and a radical thinker who supported the American and French revolutions, he felt that beings were under the “laws of nature” rather than a deity. Dr. Darwin had extensive knowledge of botany and zoology, translated Linnaeus’ botanical classification volumes from Latin, and often wrote about his subjects in didactic poems or prose, annotated with scientific references. His *Zoonomia* had a chapter describing transmutation (evolution), which preceded the work of Lamarck and was read by his grandson, Charles.

Would it be too bold to imagine that, in the great length of time since the earth began to exist, perhaps millions of ages before the commencement of the history of mankind, would it be too bold to imagine that all warm-blooded animals have arisen from one living filament, which THE GREAT FIRST CAUSE endued with animality, with the power of acquiring new parts, attended with new propensities, directed by irritations, sensations, volitions and, and thus possessing the faculty of continuing to improve by its own inherent activity, and of delivering down these improvements by generation to its posterity, world without end! (505)

Similar thoughts were published in his *Temple of Nature*:

Organic life beneath the  
shoreless waves  
Was born and nurs’d in  
ocean’s pearly caves;  
First forms minute, unseen  
by spheric glass,  
Move on the mud, or pierce  
the watery mass;  
These, as successive  
generations bloom,  
New powers acquire and  
larger limbs assume;  
Whence countless groups of  
vegetation spring,  
And breathing realms of fin  
and feet and wing.

*Zoonomia* influenced Alexander von Humboldt, whose writings in turn inspired his grandson Charles to seek a voyage to distant lands.

Erasmus Darwin’s third son and Charles Darwin’s father, Robert (1766-1848), was educated at the University of Edinburgh Medical School. He established a medical practice in Shrewsbury, but it was real estate speculation and finance, as well as marriage to a Wedgewood heir, that made him a very wealthy man. He built an estate on the Severn River, The Mount, and appointed it with gardens and birds, especially varieties of fancy pigeons.

### Childhood and Shrewsbury Schooling

Charles Darwin apparently had a happy and generally uneventful childhood apart from the death of his mother. Darwin wrote in his *Autobiography*:

[...] I was sent to a day-school in Shrewsbury, where

I stayed a year. I have been told that I was much slower in learning than my younger sister Catherine, and I believe that I was in many ways a naughty boy. [...] I tried to make out the names of plants and collected all sorts of things, shells, seals, franks, coins, and minerals. The passion for collecting which leads a man to be a systematic naturalist, a virtuoso, or a miser, was very strong in me, and was clearly innate, as none of my sisters or brother ever had this taste. [...] apparently I was interested at this early age in the variability of plants!

Darwin’s next school was a boarding school close to his home.

In the summer of 1818 I went to Dr. Butler’s great school in Shrewsbury, and remained there for seven years still Midsummer 1825, when I was sixteen years old. [...] Nothing could have been worse for the development of my mind than Dr. Butler’s school, as it was strictly classical, nothing else being taught, except a little ancient geography and history. [...] When I left the school I was for my age neither high nor low in it; and I believe that I was considered by all my masters and by my father as a very ordinary boy, rather below the common standard in intellect.

Nonetheless, Darwin recognized that he did have the enthusiasm

that is necessary to keep scientific probing continuous: “[...] I had strong and diversified tastes, much zeal for whatever interested me, and a keen pleasure in understanding any complex subject or thing.” He also took long, solitary walks, apparently immersed in thought, and wrote in *Autobiography* of a seven or eight foot fall he took once when not paying attention.

Darwin credited his brother Erasmus with introducing him to some experimental protocols that he carried on throughout his life; chemical in nature, they probably demonstrated the Wedgewood influence as well: “Towards the close of my school life, my brother worked hard at chemistry, and made a fair laboratory with proper apparatus in the tool-house in the garden. [...] This was the best part of my education at school, for it showed me practically the meaning of experimental science.” They often lacked funds to purchase chemicals or glassware and sought outlays from their father. They referred to this practice as “milk the cow.”

### Edinburgh (1825-27)

Dr. Darwin desired for his sons to follow in his footsteps as physicians, but despaired of Charles’ undisciplined study habits and his love of idle things. Darwin wrote: “To my deep mortification my father once said to me, ‘You care for nothing but shooting, dogs, and rat-catching, and you will be a disgrace to yourself and all your family.’”

In 1825, sent by Dr. Darwin to medical school at Edinburgh where

brother Ras was already studying, Charles quickly found he did not like medicine and that dissection was repulsive to him:

I also attended on two occasions the operating theatre in the hospital at Edinburgh, and saw two very bad operations, one on a child, but I rushed away before they were completed. Nor did I ever attend again, for hardly any inducement would have been strong enough to make me do so; this being long before the blessed days of chloroform. The two cases fairly haunted me for many a long year.

Near the end of his first year, “I became convinced from various small circumstances that my father would leave me property enough to subsist on with some comfort...my belief was sufficient to check any strenuous efforts to learn medicine.” His father sent him a message that “if you do not discontinue your indulgent way, your course of study will be utterly useless.” He wanted to tell his father medicine was not going to be his path, but could not bring himself to suffer the wrath of the frustrated Dr. Darwin.

After the end of the school year, Darwin returned to Shrewsbury and spent the five months avoiding The Mount as much as possible: “My summer vacations during these two years were wholly given up to amusements, though I always had some book in hand, which I read with interest.” During the summer of 1826, in addition to

taking a “long walking tour with two friends with knapsacks on our backs through North Wales” and keeping “an exact record of every bird which I shot throughout the whole season,” Charles probably read his grandfather’s *Zoonomia*.

Despite needing only two more courses for the medical degree, he shifted his focus to natural history.

Ras left for Cambridge to continue his medical education, forcing Charles to make other contacts at Edinburgh. Despite needing only two more courses for the medical degree, he shifted his focus to natural history. His friends introduced him to the Plinian Natural History Society, which “consisted of students and met in an underground room in the University for the sake of reading papers on natural science and discussing them. I used regularly to attend, and the meetings had a good effect on me in stimulating my zeal and giving me new congenial acquaintances.” Darwin biographer Keith Thomson surmised that society membership was a significant step in Darwin’s maturation, helping him overcome his shyness, engage in the

intellectual life of Edinburgh, and move beyond books in his learning. His notebooks began to have a purpose, detailing his scientific findings, observations, and thoughts.

The professor who attended the Plinian Society meetings was Robert Grant, one of the most important influences in Charles Darwin's life. He and Grant often walked the coasts, and Darwin learned how to ask questions. Grant was a non-conformist in his scientific, social, and theological views, as well as being an unrepentant transmutationist.

He one day, when we were walking together, burst forth in high admiration of Lamarck and his views on evolution. I listened in silent astonishment, and as far as I can judge without any effect on my mind. I had previously read the *Zoonomia* of my grandfather, in which similar views are maintained, but without producing any effect on me. Nevertheless it is probable that the hearing rather early in life such views maintained and praised may have favoured my upholding them under a different form in my *Origin of Species*.

Grant believed that a few common body plans served as the basic blueprints for various animal forms, and that species were not fixed, but could diversify and adapt through transmutations. He introduced Darwin to the study of Bryozoans (moss animals), which he thought were a link between

plants and animals. Grant replaced Ras in Darwin's life and nurtured the budding young scholar. Under Grant's influence, he wrote in his notebook of things he did not comprehend instead of what he understood. The insignificant little organisms that Charles studied under Grant guided many of his future studies.

## Grant reported Darwin's findings as his own with no attribution.

Grant also provided one of Darwin's greatest disappointments. Darwin, using a microscope, found that what were thought to be the eggs/seeds of a colonial bryozoan (*Flustra*) were actually larvae. Thus bryozoans were not a link to plants, but were animals. Grant had not observed this, and rather than praising Darwin, he castigated him for working on his area of specialty. When Darwin presented his findings to the Plinian Society, Grant stood up and talked at length about *Flustra*, overshadowing Darwin. Darwin, in a reminiscence to his daughter, Henrietta, recalled that Grant told him that he would take ill if Darwin published his finding. Later, Grant reported Darwin's findings as his own with no attribution. Darwin found that others had been treated in similar fashion and distanced himself.

Darwin ended his second year in Edinburgh disenchanted and drifting.

### Cambridge (1827-31)

In the summer of 1827, Dr. Darwin was becoming quite concerned about preserving the family's reputation.

After having spent two sessions in Edinburgh, my father perceived, or he heard from my sisters, that I did not like the thought of being a physician, so he proposed that I should become a clergyman. He was very properly vehement against my turning into an idle sporting man, which then seemed my probable destination. I asked for some time to consider, as from what little I had heard or thought on the subject I had scruples about declaring my belief in all the dogmas of the Church of England; though otherwise I liked the thought of being a country clergyman.

This was an appealing option to Charles, as his father could easily afford to purchase a parish and retain it for his son. Once ordained, Charles would have social standing, income, as well as time to pursue leisure activities and natural history. His father decided to send him to Cambridge for an undergraduate degree, and then he could take the steps to be ordained.

He entered in the middle of the academic year after some refresher tutoring in Latin and

Greek. Cambridge was attractive to Charles because Ras was there, and the core of learning was based on reading and tutorials instead of lectures. The courses of study were not demanding but congenial, which made him more relaxed, being among peers, and with opportunities to engage in natural history.

His second cousin William Darwin Fox was also at Christ's College (where John Milton had studied) and they became close friends. Beetlemania was then a passion in England, and the two joined in enthusiastically: "no pursuit at Cambridge was followed with nearly so much eagerness or gave me so much pleasure as collecting beetles." His enthusiasm grew when he discovered rare specimens and was cited in publications for his finds: "No poet ever felt more delighted at seeing his first poem published than I did at seeing, in Stephens' 'Illustrations of British Insects,' the magic words, 'captured by C. Darwin, Esq.'"

He was not serious about his studies, however. As he later admitted, "During the three years which I spent at Cambridge my time was wasted, as far as the academical studies were concerned, as completely as at Edinburgh and at school." But it was also at Cambridge that Fox introduced Darwin to Reverend John Stevens Henslow, who would have the greatest impact on Charles Darwin's future. Darwin described his friendship with Henslow as "a circumstance which influenced my whole career more than any other."

Before coming up to Cambridge, I had heard of him from my brother as a man who knew every branch of science, and I was accordingly prepared to reverence him. He kept open house once every week when all undergraduates, and some older members of the University, who were attached to science, used to meet in the evening. I soon got, through Fox, an invitation, and went there regularly. Before long I became well acquainted with Henslow, and during the latter half of my time at Cambridge took long walks with him on most days; so that I was called by some of the dons 'the man who walks with Henslow' [...].

Henslow's botany lectures were the only formal courses in natural history Darwin took at Cambridge.

As Keith Thompson points out, Henslow provided Darwin what he most needed to succeed: a mentor to develop his confidence as well as introduce him to others in social settings. He helped Darwin believe in himself and gave him direction. Henslow was unselfish, benevolent, and cultivated Darwin's intellectual growth and originality—a contrast to Grant. He helped turn Darwin's zeal into structured scientific discovery.

Darwin's reading also shaped his approach to science: John Herschel's *Preliminary Discourse on the Study of Natural Philosophy* (about formulating and testing

hypotheses) and the six-volume *Personal narrative of travels to the equinoctial regions of the New Continent* of Alexander von Humboldt, which inspired him to seek travels to study natural history. Darwin wrote, "No one or a dozen other books influenced me nearly so much as these two."

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Darwin passed his final bachelor of arts examination in January 1831 and ranked 10th of 178, indicating that he put in a significant effort prior to the exams. Since Charles had begun in mid-year, he had to spend additional residential time at Cambridge before graduation. With his zeal for science, he had no interest in further theological study; Henslow urged him instead to study geology with the distinguished Professor Adam Sedgwick (a friend of William Wordsworth and teacher of Alfred, Lord Tennyson), whom he had met at Henslow's house. Darwin had hoped he could venture to the Canary Islands after graduation, with his father footing the bill, but he was not able to entice others to join the trip. Sedgwick was planning a field trip to Wales in

August, and Henslow arranged for Darwin to join Sedgwick for three weeks.

This was one of the most important periods in Darwin's development. Sedgwick constantly challenged him and helped him deduce from assorted observations. In the space of several days, Darwin had learned to identify rock types, read stratifications, and generalize. He later declared, "Nothing before had ever made me thoroughly realise, though I had read various scientific books, that science consists in grouping facts so that general laws or conclusions may be drawn from them."

After leaving Sedgwick, Darwin returned to Shrewsbury in late August, still dreaming of a trip to

the Canary Islands. Awaiting him at The Mount was a letter from Henslow, offering Darwin a chance for the trip of his life: to join the *Beagle* for a voyage around the world.

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