

Erasmus Darwin

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Erasmus Darwin (12 December 1731 – 18 April 1802) was an English physician. One of the key thinkers of the Midlands Enlightenment, he was also a natural philosopher, physiologist, slave trade abolitionist,^[1] inventor and poet. His poems included much natural history, including a statement of evolution and the relatedness of all forms of life. He was a member of the Darwin–Wedgwood family, which includes his grandsons Charles Darwin and Francis Galton. Darwin was also a founding member of the Lunar Society of Birmingham, a discussion group of pioneering industrialists and natural philosophers. He turned down George III's invitation to be a physician to the King.

Erasmus Darwin House, his home in Lichfield, is now a museum dedicated to Erasmus Darwin and his life's work. A school in nearby Chasetown recently converted to Academy status and is now known as Erasmus Darwin Academy.

Erasmus Darwin



Wright, Joseph (c. 1792–3), *Erasmus Darwin* (oil) (painting), Derby Museum and Art Gallery

Born	12 December 1731 Elston Hall, Elston, Nottinghamshire near Newark-on-Trent
Died	18 April 1802 (aged 70) Breadsall, Derby
Resting place	All Saints Church, Breadsall
Residence	Lichfield

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Life

Early life

Darwin was born at Elston Hall, Nottinghamshire near Newark-on-Trent, England, the youngest of seven children of Robert Darwin of Elston (12 August 1682–20 November 1754), a lawyer, and his wife Elizabeth Hill (1702–97). The name Erasmus had been used by a number of his family and derives from his ancestor Erasmus Earle, Common Sergent of England under Oliver Cromwell.^[2] His siblings were:

- Robert Darwin (17 October 1724 – 4 November 1816)
- Elizabeth Darwin (15 September 1725 – 8 April 1800)
- William Alvey Darwin (3 October 1726 – 7 October 1783)
- Anne Darwin (12 November 1727 – 3 August 1813)
- Susannah Darwin (10 April 1729 – 29 September 1789)
- John Darwin, rector of Elston (28 September 1730 – 24 May 1805)

He was educated at Chesterfield Grammar School, then later at St John's College, Cambridge.^[3] He obtained his medical education at the University of Edinburgh Medical School. Whether Darwin ever obtained the formal degree of MD is not known. Darwin settled in 1756 as a physician at Nottingham, but met with little success and so moved the following year to Lichfield to try to establish a practice there. A few weeks after his arrival, using a novel course of treatment, he restored the health of a young man whose death seemed inevitable. This ensured his success in the new locale. Darwin was a highly successful physician for more than fifty years in the Midlands. George III invited him to be Royal Physician, but Darwin declined. In Lichfield, Darwin wrote "didactic poetry, developed his system of evolution, and invented amongst other things, an organ able to recite the Lord's Prayer, the Creed, and the Ten Commandments".^[4]

Darwin was a large man who gave up weighing himself when he reached 336 pounds (24.3 stones, 153 kg). When visiting patients, he would have his driver, also a very large man, walk ahead of him to make sure the floor of a house would hold him.^[5]

Marriages and children

Darwin married twice and had 14 children, including two illegitimate daughters by an employee, and, possibly, at least one further illegitimate daughter.

In 1757, he married Mary (Polly) Howard (1740–1770). They had four sons and one daughter, two of whom (a son and a daughter) died in infancy:

- Charles Darwin (1758-1778)
- Erasmus Darwin II (1759–1799)
- Elizabeth Darwin (1763, survived 4 months)
- Robert Waring Darwin (1766–1848), father of the naturalist Charles Darwin
- William Alvey Darwin (1767, survived 19 days)

The first Mrs. Darwin died in 1770. A governess, Mary Parker, was hired to look after Robert. By late 1771, employer and employee had become intimately involved and together they had two illegitimate daughters:

- Susanna Parker (1772–1856)



Stone-cast bust of Erasmus Darwin, by W. J. Coffee, c. 1795



Darwin's House in Lichfield, now a museum dedicated to his life and work.

- Mary Parker Jr (1774–1859)

Susanna and Mary Jr later established a boarding school for girls. In 1782, Mary Sr (the governess) married Joseph Day (1745–1811), a Birmingham merchant, and moved away.

Darwin may have fathered another child, this time with a married woman. A Lucy Swift gave birth in 1771 to a baby, also named Lucy, who was christened a daughter of her mother and William Swift, but there is reason to believe the father was really Darwin.^[6] Lucy Jr. married John Hardcastle in Derby in 1792 and their daughter, Mary, married Francis Boott, the physician.

In 1775, Darwin met Elizabeth Pole, daughter of Charles Colyear, 2nd Earl of Portmore, and wife of Colonel Edward Pole (1718–1780); but as she was married, Darwin could only make his feelings known for her through poetry. When Edward Pole died, Darwin married Elizabeth and moved to her home, Radbourne Hall, four miles (6 km) west of Derby. The hall and village are these days known as Radbourne. In 1782, they moved to Full Street, Derby. They had four sons, one of whom died in infancy, and three daughters:



Darwin in 1770

- Edward Darwin (1782–1829)
- Frances Ann Violetta Darwin (1783–1874), married Samuel Tertius Galton, was the mother of Francis Galton
- Emma Georgina Elizabeth Darwin (1784–1818)
- Sir Francis Sacheverel Darwin (1786–1859)
- John Darwin (1787–1818)
- Henry Darwin (1789–1790), died in infancy.
- Harriet Darwin (1790–1825), married Admiral Thomas James Maling

Death

Darwin died suddenly on 18 April 1802, weeks after having moved to Breadsall Priory, just north of Derby. His body is buried in All Saints Church, Breadsall.

Erasmus Darwin is commemorated on one of the Moonstones, a series of monuments in Birmingham.

Writings

Botanical works

Darwin formed the Lichfield Botanical Society in order to translate the works of the Swedish botanist Carolus Linnaeus from Latin into English. This took seven years. The result was two publications: *A System of Vegetables* between 1783 and 1785, and *The Families of Plants* in 1787. In these volumes, Darwin coined many of the English names of plants that we use today.

Darwin then wrote *The Loves of the Plants*, a long poem, which was a popular rendering of Linnaeus' works. Darwin also wrote *Economy of Vegetation*, and together the two were published as *The Botanic Garden*.

Zoonomia

Darwin's most important scientific work, *Zoonomia* (1794–1796), contains a system of pathology and a chapter on 'Generation'. In the latter, he anticipated some of the views of Jean-Baptiste Lamarck, which

foreshadowed the modern theory of evolution. Erasmus Darwin's works were read and commented on by his grandson Charles Darwin the naturalist. Erasmus Darwin based his theories on David Hartley's psychological theory of associationism.^[7] The essence of his views is contained in the following passage, which he follows up with the conclusion that one and the same kind of living filament is and has been the cause of all organic life:

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 associations; and thus possessing the faculty of continuing to improve by its own inherent activity, and of delivering down those improvements by generation to its posterity, world without end! ^[8]

Erasmus Darwin also anticipated natural selection in *Zoönomia* mainly when writing about the "three great objects of desire" for every organism: "lust, hunger, and security."^[8] Another remarkable foresight written in *Zoönomia* that relates to natural selection is Erasmus' thoughts on how a species propagated itself. Erasmus' idea that "the strongest and most active animal should propagate the species, which should thence become improved" ^[8] was almost identical to the future theory of survival of the fittest.

Erasmus Darwin was familiar with the earlier proto-evolutionary thinking of James Burnett, Lord Monboddo, and cited him in his 1803 work *Temple of Nature*.

Poem on evolution

Erasmus Darwin offered the first glimpse of his theory of evolution, obliquely, in a question at the end of a long footnote to his popular poem *The Loves of the Plants* (1789), which was republished throughout the 1790s in several editions as *The Botanic Garden*. His poetic concept was to anthropomorphize the stamen (male) and pistil (female) sexual organs, as bride and groom. In this stanza on the flower *Curcuma* (also Flax and Turmeric) the "youths" are infertile, and he devotes the footnote to other examples of neutered organs in flowers, insect castes, and finally associates this more broadly with many popular and well-known cases of vestigial organs (male nipples, the third and fourth wings of flies, etc.)

Woo'd with long care, CURCUMA cold and shy
Meets her fond husband with averted eye:
Four beardless youths the obdurate beauty move
With soft attentions of Platonic love.

Darwin's final long poem, *The Temple of Nature*, was published posthumously in 1803. The poem was originally titled *The Origin of Society*. It is considered his best poetic work. It centres on his own conception of evolution. The poem traces the progression of life from micro-organisms to civilized society.

His poetry was admired by Wordsworth, although Coleridge was intensely critical, writing, "I absolutely nauseate Darwin's poem".^[9] It often made reference to his interests in science; for example botany and steam engines.

Education of women

The last two leaves of Darwin's *A plan for the conduct of female education in boarding schools* (1797) contain a book list, an apology for the work, and an advert for "Miss Parkers School". The work probably resulted from his liaison with Mary Parker.^[citation needed] The school advertised on the last page is the one he set up in Ashbourne, Derbyshire for their two illegitimate children, Susanna and Mary.

Darwin regretted that a good education had not been generally available to women in Britain in his time, and drew on the ideas of Locke, Rousseau, and Genlis in organising his thoughts. Addressing the education of middle class girls, Darwin argued that amorous romance novels were inappropriate and that they should seek simplicity in dress. He contends that young women should be educated in schools, rather than privately at home, and learn appropriate subjects. These subjects include physiognomy, physical exercise, botany, chemistry, mineralogy, and experimental philosophy. They should familiarize themselves with arts and manufactures through visits to sites like Coalbrookdale, and Wedgwood's potteries; they should learn how to handle money, and study modern languages. Darwin's educational philosophy took the view that men and women should have different, but complementary capabilities, skills, spheres, and interests.^[10] In the context of the times, this program may be read as a modernising influence.

Lunar Society

The Lunar Society: these dates indicate the year in which Darwin became friends with these people, who, in turn, became members of the Lunar Society. The Lunar Society existed from 1765 to 1813.

Before 1765:

- Matthew Boulton, originally a buckle maker in Birmingham
- John Whitehurst of Derby, maker of clocks and scientific instruments, pioneer of geology

After 1765:

- Josiah Wedgwood, potter 1765
- Dr. William Small, 1765, man of science, formerly Professor of Natural Philosophy at the College of William and Mary, where Thomas Jefferson was an appreciative pupil
- Richard Lovell Edgeworth, 1766, inventor
- James Watt, 1767, improver of steam engine
- James Keir, 1767, pioneer of the chemical industry
- Thomas Day, 1768, eccentric and author
- Dr. William Withering, 1775, the death of Dr. Small left an opening for a physician in the group.
- Joseph Priestley, 1780, experimental chemist and discoverer of many substances.
- Samuel Galton, 1782, a Quaker gunmaker with a taste for science, took Darwin's place after Darwin moved to Derby.

Darwin also established a lifelong friendship with Benjamin Franklin, who shared Darwin's support for the American and French revolutions. The Lunar Society was instrumental as an intellectual driving force behind England's Industrial Revolution.

The members of the Lunar Society, and especially Darwin, opposed the slave trade. He attacked it in *The Botanic Garden* (1789–1791), and in *The Loves of Plants* (1789) and *The Economy of Vegetation* (1791).

Other activities

In addition to the Lunar Society, Erasmus Darwin belonged to the influential Derby Philosophical Society, as did his brother-in-law Samuel Fox (see family tree below). He experimented with the use of air and gases to alleviate infections and cancers in patients. A Pneumatic Institution was established at Clifton in 1799 for clinically testing these ideas. He conducted research into the formation of clouds, on which he published in 1788. He also inspired Robert Weldon's Somerset Coal Canal caisson lock.

Darwin's experiments in galvanism were an important source of inspiration for Mary Shelley to write *Frankenstein*.^[*citation needed*]

Cosmological speculation

Contemporary literature dates the cosmological theories of the Big Bang and Big Crunch to the 19th and 20th centuries. However Erasmus Darwin had speculated on these sorts of events in *The Botanic Garden, A Poem in Two Parts: Part I, The Economy of Vegetation, 1791*:

*Roll on, ye Stars! exult in youthful prime,
Mark with bright curves the printless steps of Time;
Near and more near your beamy cars approach,
And lessening orbs on lessening orbs encroach; —
Flowers of the sky! ye too to age must yield,
Frail as your silken sisters of the field!
Star after star from Heaven's high arch shall rush,
Suns sink on suns, and systems systems crush,
Headlong, extinct, to one dark center fall,
And Death and Night and Chaos mingle all!
— Till o'er the wreck, emerging from the storm,
Immortal Nature lifts her changeful form,
Mounts from her funeral pyre on wings of flame,
And soars and shines, another and the same.*

Inventions

Darwin was the inventor of several devices, though he did not patent any. He believed this would damage his reputation as a doctor, and encouraged his friends to patent their own modifications of his designs.^[11]

- A horizontal windmill, which he designed for Josiah Wedgwood (who would be Charles Darwin's other grandfather, see family tree below).
- A carriage that would not tip over (1766).
- A steering mechanism for his carriage that would be adopted by cars 130 years later (1759).^[11]
- A speaking machine (at Clifton in 1799).
- A canal lift for barges.
- A minute artificial bird.^[11]
- A copying machine (1778).
- A variety of weather monitoring machines.
- An artesian well (1783).

Rocket engine

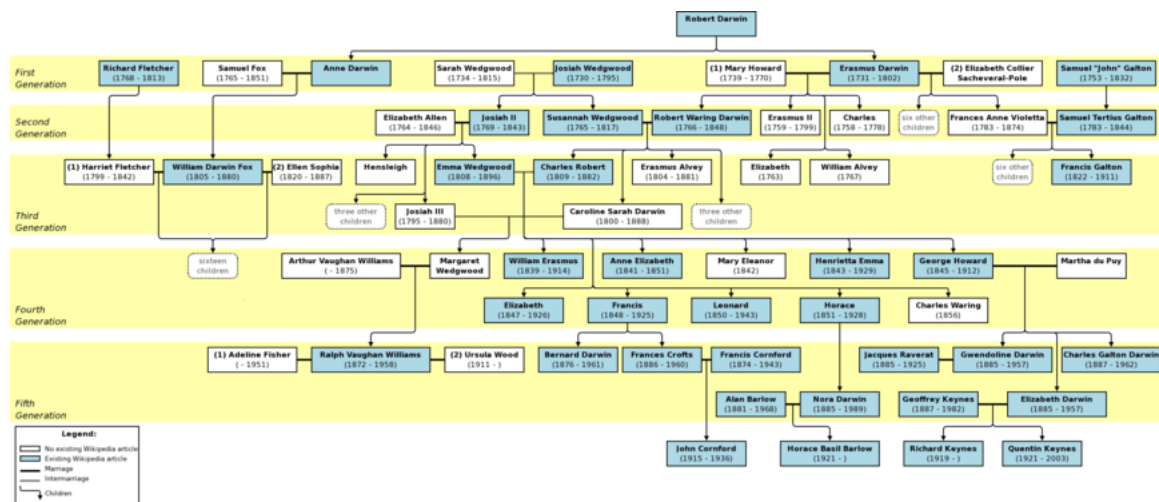
In notes dating to 1779, Darwin made a sketch of a simple hydrogen-oxygen rocket engine, with gas tanks connected by plumbing and pumps to an elongated combustion chamber and expansion nozzle, a concept not to be seen again until one century later.

Major publications

- Erasmus Darwin, *A Botanical Society at Lichfield. A System of Vegetables, according to their classes, orders... translated from the 13th edition of Linnaeus' Systema Vegetabilium*. 2 vols., 1783, Lichfield, J. Jackson, for Leigh and Sotheby, London.
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- Part II, *The Loves of the Plants*. 1789, London, J. Johnson.
- Erasmus Darwin, *Zoonomia; or, The Laws of Organic Life*, 1794, Part I. London, J. Johnson,
- Part I-III. 1796, London, J. Johnson.
- Darwin, Erasmus 1797. *A plan for the conduct of female education in boarding schools*. J. Johnson, Derby. 4to, 128 pages; last two leaves contain a book list, an apology for the work, and an advert for "Miss Parkers School".
- Erasmus Darwin, *Phytologia; or, The Philosophy of Agriculture and Gardening*. 1800, London, J. Johnson.
- Erasmus Darwin, *The Temple of Nature; or, The Origin of Society*. 1803, London, J. Johnson.

Family tree



Appearances

- Charles Sheffield, an author noted largely for hard science fiction, wrote a number of stories featuring Darwin in a manner quite similar to Sherlock Holmes. These stories were collected in a book, *The Amazing Dr. Darwin*.
- Darwin's opposition to slavery in poetry was included by Benjamin Zephaniah in a reading. This inspired the establishment of the Genomic Dub Collective (<http://www.infection.bham.ac.uk/BPAG/Dub/dub.html>), whose album includes quotations from Erasmus "Ras" Darwin, his grandson Charles Darwin and Haile Selassie.
- The forgetting of Erasmus' designs for a rocket is a major plot point in Stephan Baxter's tale of alternate universes, *Manifold: Origin*.
- Phrases from Darwin's poem The Botanic Garden are used as chapter headings in *The Pornographer of Vienna* by Lewis Crofts.
- British poet J.H. Prynne took on the pseudonym Erasmus W. Darwin for his "plant time" bulletins in the pages of *Bean News* (1972).
- A building on the Nottingham Trent University Clifton Campus is named after him. It is the centre for science teaching, academic offices and study space.
- Erasmus Darwin appears as a character in Sergey Lukyanenko's novel *New Watch* as a Dark Other and a prophet living in Regent's Park Estate.

See also

- Erasmus Darwin House – The Museum of Erasmus Darwin in Lichfield, Staffordshire
- Evolutionary ideas of the renaissance and enlightenment
- History of evolutionary thought

References

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- ↑ Burke's *Landed Gentry*, Darwin formerly of Downe, 1966
- ↑ Venn, J.; Venn, J. A., eds. (1922–1958). "Darwin, Erasmus (<http://venn.lib.cam.ac.uk/cgi-bin/search.pl?sur=&suro=c&fir=&firo=c&cit=&cito=c&c=all&tex=DRWN750E&sy=&eye=&col=all&maxcount=50>)". *Alumni Cantabrigienses (10 vols)* (online ed.). Cambridge University Press.
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- ↑ Lucy Hardcastle, 1771-c1835 (<http://www.darwinproject.ac.uk/namedef-2106>)
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- ↑ DNB entry for Erasmus Darwin. Oxford.
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Further reading

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External links

- Works by Erasmus Darwin (<http://www.gutenberg.org/author/Erasmus+Darwin>) at Project Gutenberg
- Erasmus Darwin House, Lichfield (<http://www.erasmusdarwin.org>)
- Revolutionary Players website (<http://www.revolutionaryplayers.org.uk/home.stm>)
- "Preface and 'a preliminary notice'" by Charles Darwin (<http://pages.britishlibrary.net/charles.darwin3/erasmus.html>) in Ernst Krause, *Erasmus Darwin* (1879)

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