

ERASMUS DARWIN:

An unacknowledged genius?

Alison Wallis

Erasmus Darwin (1731-1802) was a physician by profession, but he was also an inventor, scientific writer and poet. A founder member of Birmingham's Lunar Society and the Derby Philosophical Society, his influence can be explored through his personal contacts and effervescent correspondence. His reputation has been overshadowed by that of his grandson Charles, but the elder Darwin is significant in his own right. His biographer Desmond King-Hele described him as a man who 'probably achieved more in a wider range of disciplines than anyone since'.

Early Life

Erasmus Darwin was born at Elston, near Newark, on 12 December 1731. He was the youngest of four sons of Robert Darwin of Elston and Elizabeth Hill. He was educated at Chesterfield School then later at St John's College, Cambridge and got a degree at Edinburgh Medical School. From childhood he had a very bad stammer. His good friend Anna Seward (1747-1809) wrote that 'he stammered extremely, but whatever he said, whether gravely or in jest, was always well worth waiting for'.

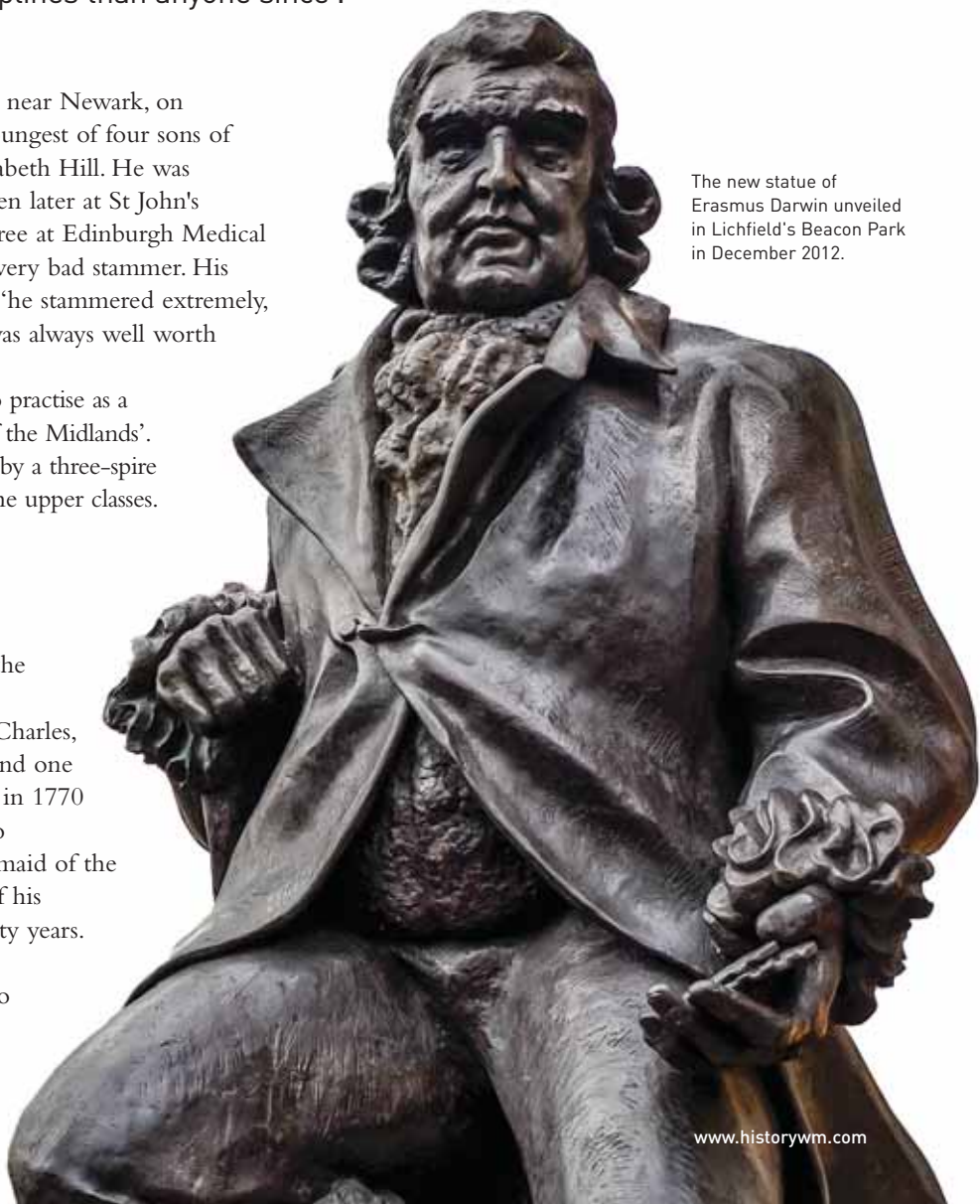
In 1756 he moved to Lichfield in Staffordshire to practise as a doctor. Lichfield was once known as the 'Mother of the Midlands'. It was a cultural and ecclesiastical centre dominated by a three-spire cathedral and home to many wealthy members of the upper classes. He remained there until 1781.

Darwin's Women

In November 1756, only a year after moving to Lichfield, Darwin married Mary (Polly) Howard, the seventeen-year-old daughter of a proctor in the Ecclesiastical Court. Together they had four sons, Charles, Erasmus, Robert (the father of Charles), William and one daughter Elizabeth. After a long illness Polly died in 1770 aged 30 years. Over the next few years he had two illegitimate daughters, Susan and Mary, by a nursemaid of the house, Mary Parker, who, in the relaxed manner of his household, were brought up in his home for twenty years.

Darwin then fell in love with Elizabeth Pole (pronounced Poole), who was married at the time to Colonel Pole. He spent many years wooing her and tried to impress her by writing her poetry.

The new statue of Erasmus Darwin unveiled in Lichfield's Beacon Park in December 2012.



The hallway of Erasmus Darwin House, Lichfield



Courtesy Erasmus Darwin Foundation

Lichfield was a cultural and ecclesiastical centre dominated by its three-spire Cathedral



Courtesy Visit Lichfield

He eventually married her in 1781, a year after Colonel Pole died, and together they had four sons and three daughters. These children, together with Darwin's existing seven children and Elizabeth's four children from her previous marriage, gave Darwin eighteen children altogether.

Another significant woman in Darwin's life was Anna Seward, the daughter of a Canon at Lichfield Cathedral. She was a great friend of Darwin's and they discussed many subjects. Seward was fourteen when Darwin arrived in Lichfield and was already a budding poet. She became known as the Swan of Lichfield and wrote the first biography of Erasmus, *Memoirs of the Life of Dr Darwin*. It has been suggested that Anna expected to become the second Mrs Darwin, but this was obviously not to be.

A Forward-thinking Doctor

Darwin's success in his professional career was swift. He treated local residents of Lichfield without taking a fee, but would travel considerable distances by horse or carriage to reach his richer patients whom he would charge handsomely.

Darwin believed that the mind was part of the body and its sensations. He had formidable powers of observation and treated his patients with great kindness, especially when dealing with mental illness. His lifelong friend James Keir (1735-1820) said of him 'sympathy and benevolence were the most striking features. He felt very sensibly for others.' He had a great knowledge of psychology and would use this when prescribing treatments. He believed in considering the whole body, rather than just dealing with the individual ailment alone. His medical reputation was so great that King George III requested that Darwin move to London to be the King's personal physician, but Darwin declined the offer.

Darwin's zeal for science and medicine led him to some of the more macabre activities of the profession. In the eighteenth century it was often common practice for physicians to dissect dead bodies

to increase their understanding of anatomy. However, suitable bodies were difficult to obtain which encouraged the crime of body snatching. When the opportunity came legally to secure the bodies of executed criminals, Darwin took it. An advert from *Aris's Birmingham Gazette* noted:

October 23rd 1762, the body of the Malefactor, who is order'd to be executed at Lichfield on Monday the 25th instant, will be afterwards conveyed to the house of Dr Darwin, who will begin a course of anatomical lectures, at four o'clock on Tuesday evening, and continue them every day as long as the body can be preserved; and shall be glad to be favoured with the company of any who profess medicine or surgery, or whom the love of science may induce.

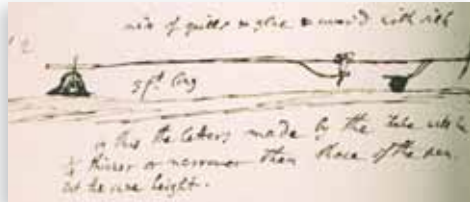
The Theory of Evolution

During the cutting of the Harecastle Tunnel on the Grand Trunk Canal, Darwin was given some fossil bones to identify. As a doctor he was expected to know about bones, but these were unlike any he had seen before. Within two years he came to believe in what we now call biological evolution. This led him to create his motto *E Conchis Omnia* – everything from shells, which he painted on to his carriage with his coat of arms.

When Canon Seward, the father of Anna Seward, saw it he demanded that Darwin remove it as it was against the Church's teaching as Darwin was denying God's role as the creator of the species. He painted out the motto but left the three scallop shells. Nevertheless, he was convinced by his theories and determined to express them, so he wrote an epic poem, *The Temple of Nature*, tracing the progress of microscopic specks in primeval seas through fishes and amphibians to humankind. This work helped to inspire his grandson, Charles, earning Erasmus Darwin the title the 'Grandfather of Evolution'.



Doctor Darwin's visiting card



Sketch of 'bigrapher' or mechanical copying machine in Darwin's Commonplace Book, 1777



Sketch for a canal lift described in the Commonplace Book, 1777-1778



Darwin's bookplate with his motto, *E Conchis Omnia* – everything from shells

Darwin and the Lunar Men

During his first five years in Lichfield, Darwin made many friends from outside the city. These were mainly men of science and business from Birmingham, including Matthew Boulton (1728–1809). Their friendship lasted until Darwin's death. Boulton was a manufacturer of metal goods and Darwin introduced him to a different intellectual world. Both were highly sociable individuals and founder members of Birmingham's Lunar Society.

When Josiah Wedgwood (1730–1795) met Erasmus they co-operated on Wedgwood's project to build the Grand Trunk Canal. Darwin helped to promote it and this cemented their friendship. They changed the landscape of the West Midlands by building canals, factories and steam engines and discovered and named gases, minerals and medicines.

Darwin believed he could become an industrial entrepreneur, but was always cautious of harming his medical practice. Instead he remained a distant advocate for science and innovation, but his correspondence indicates the important role he played in the Lunar Society.

Wedgwood and Darwin were also involved in a subject of international significance: slavery and the slave trade. Wedgwood was on the committee of the Society for the Abolition of the Slave Trade and produced a medallion featuring a slave in chains, which was used as the logo of the Society. Darwin reproduced this medallion in *The Botanic Garden* and included a last-minute addition on slavery in his poem *The Loves of the Plants*.

An Obsessive Inventor

Darwin was involved in a range of scientific activities, from biology and chemistry to botany and astronomy. It was he who first described the full process of photosynthesis in plants in *The Botanic Garden* and his passion for scientific discoveries led to many of his inventions. Desmond King-Hele describes Darwin as an obsessive inventor with a passion for machines. But since medicine was his profession it could be said that his interest in invention was mainly a hobby.

Darwin spent a lot of his time on his own inventions, as well as assisting the others with the development of theirs. Amongst his numerous inventions were a bigrapher, or copying machine, a weighing machine, a vertical axis windmill, a flushing toilet, a canal lift (predecessor to the Anderton boat lift today) and a speaking machine, for which Boulton promised to pay Darwin £1000 if he could make it say the Lord's Prayer, the Apostles' Creed and the Ten Commandments. Most of these were never implemented.

He also invented a steering mechanism, which enabled carriages to turn corners more easily. He tested this on his two carriages over three years and it was invaluable to him during his journeys to patients.

He did not patent any of his inventions, because he thought that it would damage his reputation. After all, he was a doctor not an industrialist, but he did encourage his friends to patent modifications of his designs. His most famous invention, the steering mechanism, was patented by Rudolph Ackermann (1764–1834) in 1818 and this system was used in modern cars until the 1940s.

A Poet of Influence

Writing poetry provided Darwin with a way of expressing his discoveries and he became one of the most famous English poets of the 1790s. He could write for a general audience. Not only did he influence other scientists and inventors, but also writers, such as the Romantic poets Wordsworth and Blake.

Another writer inspired by Darwin was Samuel Taylor Coleridge. When he first arrived in Derby, Darwin made time for a long talk with him. Coleridge later wrote, 'Dr Darwin is an extraordinary man and received me very courteously'. Later he described Darwin as 'the first literary character in Europe, and the most original-minded Man'.

Above images all courtesy English Heritage, Down House

Erasmus Darwin Foundation (courtesy, Dr E D Barlow)



Silhouette of Elizabeth Pole
(Darwin's second wife)

THE INSPIRATION FOR FRANKENSTEIN

The nineteenth-century author Mary Shelley heard about Darwin's experiments in galvanism, the contraction of a muscle that is stimulated by an electric current, and this inspired her to write the book *Frankenstein*, published in 1831.

In her introduction she wrote
 Many and long were the conversations between Lord Byron and Shelley, to which I was a devout but nearly silent listener. During one of these, various philosophical doctrines were discussed, and among others the nature of the principle of life, and whether there was any probability of its ever being discovered and communicated. They talked of the experiments of Dr Darwin, (I speak not of what the Doctor really did, or said that he did, but, as more to my purpose, of what was then spoken of as having been done by him,) who preserved a piece of vermicelli in a glass case, till by some extraordinary means it began to move with voluntary motion. Not thus, after all, would life be given. Perhaps a corpse would be re-animated; galvanism had given token of such things: perhaps the component parts of a creature might be manufactured, brought together, and endued with vital warmth.

Lasting Impressions

When Darwin left Lichfield in 1781 and moved to Derbyshire, he continued his practice and set up the Derby Philosophical Society in 1783, which lasted for over seventy years (see article by Paul Elliott). Darwin died suddenly on 18 April 1802, probably due to a lung infection. He was buried at All Saints Church, Breadsall, Derbyshire, as was his trusty horse and long-time companion, Doctor.

Throughout his life Darwin retained his optimistic nature. He was not entirely flawless: Anna Seward's *Memoirs*, published in 1804, were in part a critical biography of Darwin. By this time, his reputation was already in decline.

Considering the significant people with whom he associated, he is often forgotten, but we should remember him for his friendships, his work and for the ways in which he affected our lives. His granddaughter remarked: "I know nothing more wonderful than the variety of his genius. Many would have been bewildered by such a compound gift, and in trying everything would have done nothing, but he made his mark in all that he undertook." ●

Alison Wallis is Curator of Darwin House Lichfield. Visit www.erasmusdarwin.org

Further Reading

Patricia Fara, *Erasmus Darwin: Sex, Science, & Serendipity* (Oxford University Press, 2012).
 Desmond King-Hele (ed), *Charles Darwin's The Life of Erasmus Darwin* (Cambridge University Press, 2003).
 Desmond King-Hele, *Erasmus Darwin: A Life of Unequalled Achievement* (Giles de la Mare, 1999).
 Maureen McNeil, *Under the Banner of Science: Erasmus Darwin and his Age* (Manchester University Press, 1987).
 Philip K. Wilson, Elizabeth A. Dolan and Malcolm Dick (eds.), *Anna Seward's Life of Erasmus Darwin* (Brewin, 2010).
 Jenny Uglow, *The Lunar Men: the Friends who Made the Future* (Faber, 2003).
 Revolutionary Players at www.revolutionaryplayers.org.uk