

DARWIN

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If you ask the man on the Clapham Bendy Bus to name the three most important scientists of the last 1000 years, the chances are that Newton, Darwin and Einstein would feature on many lists.

Only a very few would be able to explain what relativity actually is. A few more would have a stab at explaining gravity, but almost all would be able to tell us what evolution means. The impact that *Origin of Species* had on our understanding of the place of *Homo Sapiens* in the great scheme of things has been described exhaustively over the past 150 years. There is no suggestion that the clergy got their knickers in a twist over understanding why the moon went round earth, or why the sun's rays were bent as they passed a planet on their way to earth!

The public are believed to regard scientists as elderly males with unruly, and excessive, hair and Einstein and Darwin clearly help to support this hypothesis.

Yet in most other ways the three men display very different characteristics.

Newton seems to have been a rather unpleasant character. He probably maligned and plagiarised his rivals, particularly Robert Hooke. Einstein could not be described as a loyal family-loving character. How remarkably different Darwin was on all these counts.

It is well known that he prevaricated about publishing a complete synthesis of his theory, although much of his thinking was very well known to fellow scientists. This was not just the usual academic self criticism – he had published many papers and monographs previously. It seems likely that a major factor in his delay was that he agonised about the social and religious impact his theory would have, and was particularly sensitive to the beliefs of his wife, Emma.

More particularly, he was troubled by the possible clash over priority with Alfred Russel Wallace. He poured out his concerns to colleagues such as Lyell, but also in letters to Wallace himself. Those who have only seen into the minds of scientists through reading accounts by Jim Watson of the race against Linus Pauling, and stormy relationships with people like Rosalind Franklin, need to read Darwin's correspondence to recognise that scientists can also be warm and generous.

His undoubted dedication to his family was obviously strengthened by his undiagnosed, but intermittently crippling, ailment, which effectively confined him for decades at Down House. His

agony at losing his adored daughter Anne, when she was ten (having already lost another offspring) is palpable in his writing.

And yet in addition to his genius, Darwin was also extremely lucky.

Malcolm Gladwell, in his recent book *Outliers*, points out that genius and hard work are necessary, but not sufficient, indicators of success. You have to be born at the right time. Andrew Carnegie was born in 1835, and was therefore just the correct age to take advantage of the growth of railways. John D Rockefeller was conceived at just the right time to exploit the discovery, and use of, petroleum. Bill Gates was born in 1955, and was just the right age to take advantage of the introduction of personal computers. Darwin was born just in time to take advantage of Britain really ruling the waves. The British government was



English Heritage has recently restored the garden's famous 'thinking path', the Sandwalk.

prepared to finance the Beagle as part of its contribution to 'blue skies' research – although it was mainly minerals rather than biology where they hoped to get a return on their investment. Fifty years earlier, and either the French or the American colonists would have got in the way of his travels.

He was born rich – how else could a new Cambridge graduate have managed a five year 'gap year'. (Bill Gates came from a wealthy family, and attended a school with its own computer access).

Darwin dropped out of two careers – medicine after two years in Edinburgh (although he did learn to regard Scotchmen highly – pace Boswell!), and theology/the church after three years in Cambridge. (Bill Gates dropped out of Cambridge, Mass). Such career changes are easier if you have family money to fall back on.



In case this sounds ungenerous, Gates would be out of the house as a teenager between 03.00 and 06.00 to get access to the University computer when no-one else was around. Darwin endured enormous privations (and acute sea sickness) during his time with the Beagle. He even lost his first girl friend, Fanny, to Mr Biddulp, while he was away.

Through a mixture of charm and diligence – he was a prolific letter writer – Darwin deserved the excellent mentors he acquired, as well as many loyal friends and collaborators. But surely the appearance of Huxley as a disciple must be regarded as luck?

From time to time, the powers that be organise competitions to find the greatest Briton that ever was.

Without getting bogged down in semantics, let us recognise that it will never be won by a scientist, because we are like a number 14 bus. Miss one and another will soon be along. Had Darwin never existed, the theory of evolution would have been held up for only a few more years. It would not have been so elegantly nor comprehensively expounded by Wallace et al. But Mendel and co would have won through anyway. Sadly for us scientists, we have to recognise that if Shakespeare had not existed, no-one else would have given us all those clichés!

But in this, his bicentennial year, let us rejoice that he was a wonderful role model for scientists in his treatment of his fellow humans, whether relations (including Wedgwood in laws), friends or even rivals.

The actual birthday (12th February) saw Richard Dawkins (in the red corner) discussing with Richard Harries (in the blue corner) Darwin's legacy. And the venue? Why the Natural History Museum in Oxford, where Huxley first bit the ankle of the Bishop of Oxford.

A superb exhibition with many of the original letters and specimens runs at the Natural History Museum in South Kensington until April.



ens – Darwin's 'Outdoor Laboratory' – to their appearance during his time at Down House. Visitors can walk along his