

## The last word on Darwin?

### Charles Darwin: The Power of Place

by Janet Browne

Alfred A. Knopf: 2002. 624 pp. \$37.50

### Ernst Mayr

Apart from the Bible, no book has had a greater impact on the thinking of Western Man than Darwin's *Origin of Species*. This claim is based not merely on Darwin having demonstrated evolution and founded secular science, but also on the fundamental new concepts that he introduced. Darwin's refutation of Aristotle's fourth cause, teleology, was, according to the philosopher Willard Quine, Darwin's greatest contribution to philosophy. Darwin firmly introduced history ("the time factor") into science. In biology, he replaced typological by population thinking and gave chance scientific legitimacy, to mention some of his other contributions. Most major planks in the *Weltanschauung* of a modern thinker can be traced back to Darwin. His role is finally understood, after more than a century of misconceptions and misinterpretations.

In recent years, numerous books with the words Darwin or Darwinism in the title have been published, including several biographies. Even though parts of them were quite satisfactory, they often had serious faults. Their authors tended to promote special ideologies, particularly political ones, resulting in a rather biased product. There was one exception, unanimously praised by all critics: the splendid first volume of Janet Browne's biography of Darwin. As one reviewer, Geoffrey Moorehouse, put it: "If Browne's second volume is as comprehensive and lucid as the first, there will be no need for anyone to write another word on Darwin."

Has Browne fulfilled Moorehouse's hope? She has not overlooked any possible source of information on Darwin, as she spent many years reading Darwin's correspondence (some 14,000 letters) and contemporary journals (her Darwin files contain 347 full reviews of *Origin of Species*, 1,571 general articles and 336 personal large accounts). She also analysed the writings of Darwin's friends and opponents whenever they dealt with Darwin and his work.

Browne offers us a rich account of Darwin's personality, his working habits, his relation to his family, particularly to his children, his interaction with friends and opponents, his non-professional interests (literature and music), his social life, his business activities, and much more. She provides us with a full account of Darwin's puzzling illness, not wasting space on fancy

explanations, such as the South American Chagas' disease, which has completely different symptoms.

I have read no other account of Darwin's personality and daily life that is as rich as Browne's. Four of Darwin's close friends — Charles Lyell, J. D. Hooker, T. H. Huxley and Asa Gray — made major contributions to the ultimate triumph of darwinism. In the United States, Gray was tireless in spreading the gospel of evolution and, although he remained a Christian, he accepted Darwin's paradigm more completely than either Lyell or Huxley, who never accepted natural selection or gradual evolution.

Browne tells the famous story of the arrival of Wallace's manuscript on natural selection and the resulting crisis in Darwin's life. It is well known that Lyell and Hooker published Wallace's letter together with some of Darwin's previously unpublished writings. This deprived Wallace of the sole priority of publication, but presented a factually correct history of the origin of the concept of natural selection. At first, Darwin and Wallace seemed to be in total agreement on the process of evolution, but then Wallace drifted away for various reasons and no longer applied natural selection to the origin of man.

The turmoil surrounding the publication of *Origin of Species* is vividly described by Browne. Quite rightly, it was referred to as "the book that shook the world". The publication of *The Descent of Man* 12 years later

caused much less excitement, even though Darwin was now quite bold in his claims. The response indicated that now the concept of evolution had been largely accepted. No human fossils were known at the time, apart from a few Neanderthal skulls, so Darwin concentrated on demonstrating an animal origin of those human characteristics that are generally considered most typically human, such as language, intelligence, morality, self-consciousness, the religious sense and imagination. Where Darwin had no other argument he fell back on sexual selection. Darwin found that this new principle, which supplemented natural selection, enabled him to explain various phenomena, such as differences between human races, which were hitherto inexplicable.

Natural selection can function properly only if there is abundant genetic variation at all times. Yet in this pre-genetics period there was no understanding of the sources of this variation. This worried Darwin all his life. He continued to gather as much information about it as he could, and continued to propose various theories now known to be invalid. Like many others, Darwin accepted an inheritance of acquired characters as a possible source of new variation. This Lamarckian theory was finally and decisively refuted by Weismann in 1883, a year after Darwin's death.

Darwin was extraordinarily versatile in his interests and research. Browne discusses his minor publications, such as *The Expression of Emotions in Man and Animals*



## autumn books

(1872), *The Formation of Vegetable Mould, Through the Action of Worms* (1881) and five botanical publications. J. B. S. Haldane insisted that Darwin's highly original botanical work was as important as his publications on evolution. In some of this research, Darwin showed what an active and successful experimenter he was.

When evaluating this book we must remember that Browne is a historian and biographer, not an evolutionist. This is why she does not feel that it is her job to analyse Darwin's evolutionary paradigm (his five major theories) or to explain the principle of divergence and how it misled Darwin, or why he ultimately failed to solve the problem of the multiplication of species, which had been his major objective when starting to work on his "species book", or to try to explain numerous other evolutionary problems that he encountered but left without explanation. For answers to these questions one will have to turn to other books.

Alas, there still is no satisfactory presentation and analysis of Darwin's whole evolutionary paradigm. My *One Long Argument* (1997) has a short treatment of these problems but, by necessity, does not refer to some of the most recent controversies and findings. To supplement Browne's superb treatment of Darwin, the man and his period, we now need a deep analysis of his work. But this requires a real understanding of evolution, and such an understanding is not very common. ■

*Ernst Mayr is at the Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts 02138, USA.*

## Reaching for the Moon

### **The Lunar Men: Five Friends Whose Curiosity Changed the World**

by Jenny Uglow

Farrar, Straus & Giroux: 2002. 608 pp.

\$30, £25

**Robert Bud**

Looking back to the second millennium AD from a great distance in time, the Industrial Revolution might be the only distinctively British feature visible. With a shorter perspective but after a generation of revisionist examination, it seems that something historically unique and world-changing did indeed happen first in Britain during the late eighteenth century. Just when Adam Smith was showing how specialization could lead to steady economic growth, massive technological change began to make possible a quite different kind of growth, transforming an agrarian into a

manufacturing economy. There was also a consciousness that revolutionary changes were in the air, though what and which would be the most important in that era of American independence and French regicide remained unclear. This book takes the reader on a journey in that topsy-turvy time by following the details of a group of individual lives.

Your guide is not the universal historian, but history is a broad church, requiring the collaboration of people with many different skills. Some are remarkable analysts, some imaginative lateral thinkers. Others are expert weavers of tales from the fractured evidence of manuscripts and secondary accounts. Jenny Uglow is a brilliant weaver. She has brought a distinct and wonderful contribution to a subject that has been plentifully studied from other perspectives.

The tale of the Lunar Society of Birmingham is well known to the professional historian of eighteenth-century Britain. A loose club of remarkable pioneers living in the West Midlands (and meeting when the Moon was full, to make homeward journeys safer along unlit roads), it included Josiah Wedgwood, founder of the great pottery; Joseph Priestley, 'discoverer' of oxygen; and James Watt of steam-engine fame. It was among the first of that genre of Industrial Revolution associations, which included Benjamin Franklin's American Philosophical Society and the Manchester Literary and Philosophical Society to which the atom-pioneer John Dalton belonged.

One reason for the plentiful studies of the Lunar Society is that its members were both

prolific inventors of labour-saving devices and laborious writers of letters. Despite losses over 200 years, vast archives of their daily correspondence are still to be found, now carefully catalogued. The letters, not all of which are legible to modern readers, mix business news, gossip and all the elaborate dance of competitive men, conscious of their place in history, communicating with friends who are also rivals in the social world. Even if much of the core narrative already exists, Jenny Uglow is the first to draw so expertly on the texture of the correspondence to weave a picture of the relationships of these men and the world they inhabited.

The book draws not just on the manuscripts but also on two generations of scholarship, including the most current. Along with the sense of human relations there is also a judicious allocation of credit, taking account of recent judgements. The work is not a new analysis in the history of science and technology, but this is not exactly popular history either. When the author refers to 1759 as "that year of victories", she presumes a level of cultural familiarity that may not now be universal. Who today can name Britain's victories against the French that year, never mind understand the significance of the battles of Quiberon Bay or Lagos Bay?

At one level the book can be read almost as a novel of the period, with its pointillist detail and telling social comment. But its ambitions are greater. At various points the reader is encouraged to observe the significance of the Lunar Men and their world to

