

## Book Review

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### *The Age of Wonder: How the Romantic Generation Discovered the Beauty and Terror of Science*

by Richard Holmes (Harper Press)

The years between the exploratory voyages of James Cook in 1768 and of Charles Darwin in 1831 are, for Richard Holmes, the Age of Wonder. This period saw the emergence of science as a force that would materially remodel the world, and assume a new importance in the wider culture. Holmes defines the spirit of the age as a state of inquisitive optimism, a temper that proved unrivalled at expanding the boundaries of human understanding. His history is framed as a multiple biography, charting the careers of three redoubtable men of British science: Joseph Banks, William Herschel and Humphry Davy. Alongside their stories, Holmes records the relationships they forged with the writers, artists, explorers and philosophers who extrapolated from the scientists' insights and created fresh conceptions of mankind's place in the universe. The generative impulse, and the creative manifesto of the age is summarised in Wordsworth's poem *Tintern Abbey* (1798):

... with an eye made quiet by the power  
Of harmony, and the deep power of joy,  
We see into the life of things.

The deep communication between art and science is just one of the fascinations of this splendid book.

When Joseph Banks landed at Tahiti, as a young botanist on Captain Cook's first circumnavigation expedition, his encounters with the indigenous islanders challenged and broadened his unconventional mind. His lionisation back in London, and subsequent election to the presidency of the Royal Society, positioned him as a great talent-nurturer. His legacy was to be a catalyst for the development of the professional scientific establishment that would later adorn Victorian intellectual life. Banks' influence helped establish the career of astronomer William Herschel, the "watcher of the skies" whose discovery of Uranus in 1781

inspired Keats [a medical student at Guy's – Ed] in his *Ode on Chapman's Homer*. Less reliant on Banks' guidance perhaps, Humphry Davy rapidly ascended like a Montgolfier balloon into the rarefied heights of the scientific establishment. His reputation as a young chemist was enhanced by his researches with nitrous oxide: 'laughing gas'. Later, his development of a miner's safety lamp is a touchstone in the history of invention and philanthropy – his refusal to take out a patent on the design spared him amassing a fortune. The mines around Durham were the scene of Davy's researches into the properties of fire-damp (as methane was then known), and his solution to the problem of underground gas explosions made him a hero of North-East England and beyond. As Holmes puts it, the success served "to fulfil his greatest ambition: to show that a man of science could serve humanity – and be a genius". The picture of Davy that is presented is marvellous, a mixture of overweening self-advancement and buoyant, irrepressible talent. By contrast, Herschel's personality is less polychromatic. Holmes succeeds in illuminating this obsessional Hanoverian via the writings of Herschel's sister Caroline, indefatigable research assistant to her brother and a famous comet-hunter herself. Her achievements would help improve the status of women scientists, and the election of mathematician Mary Somerville as one of the first female Fellows of the Royal Astronomical Society in 1835 owes much to Caroline Herschel.

Lurking behind the Panglossian optimism implied by the title *The Age of Wonder* is the crisis of faith – in Enlightenment principles, in authority, in God - that was to become precipitous by the middle years of the nineteenth century. Twenty-first century attitudes to science have become an embattled dichotomy, caught between awe at vast technological and theoretical advances, and the fallout from traumas such as nuclear

and environmental catastrophes. The same fissure is visible in the Romantic sensibility, best illustrated for Holmes by Mary Shelley's novel *Frankenstein*. Her Creature is notably different from its celluloid spawn, in that it is eloquent, and rails against the indifference of its creator. The corruption of the soul during the re-animation of dead bodies is an idea whose time had come, with public distaste following reports of Galvani's electrical experiments on frogs. Wordsworth's conception in *Tintern Abbey* of a *motion and a spirit, that impels All thinking things ...*

had to face up to some troublesome reductionist ideas. Two more upheavals would go on to cause even more distress; the concept of deep space proposed by William Herschel, minimising our significance by virtue of the vastness of the measurable universe, and the concept of deep time made necessary by advances in geology. The eloquent howls continue, from William Blake abusing Newton, down to contemporary philosophers such as John Gray excoriating the concept of scientific progress.

To present the history of such a turbulent period takes a novelist's eye for the telling connection. Holmes sparks off some fascinating diversions. Samuel Taylor Coleridge struggles to come to terms with the concept of evolution, denouncing it as "contrary to all Possibility", with the voyage of the *Beagle* just over a decade ahead. Davy risks health and reputation in self-experimenting with nitrous oxide, and yet fails to properly establish the anaesthetic properties of the gas. Forty years passed before the discovery of ether, and the re-evaluation of nitrous oxide as a surgical adjunct. This history of science is conventionally represented as a march of progress, but the individual scientist-heroes have not been above making inexplicable oversights. Another intriguing figure is Thomas Beddoes, Davy's first mentor, a physician whose ambitions for an ethical provision of socialised healthcare

prefigure the National Health Service. His intellectual isolation and gradual exclusion from the medical mainstream led to despair and a wasted talent. During the age of wonder, scientific ambition required generous patronage, and Holmes is very good on the relationship between the thinkers and their backers.

The Royal Society of the early nineteenth century is portrayed as a institution which encouraged diversity of thought, even as the society itself became more inward-looking and elitist. *The Age of Wonders* won the 2009 Royal Society Prize for Science Books, which suggests a certain knack for self-promotion still exists at the Society's London headquarters. The role of public scientist is a relatively modern one, and traces its heritage straight back to Michael Faraday, Davy and Banks. Holmes has revived a group of men and women whose originality of mind, diligence and fallibility is decidedly relevant. His book shines light into unlikely areas. When Stephen Hawking mused recently on the existence of aliens and warned that "Earth could be at risk from an invasion" (Daily Mail, 26th April 2010), he inherits a speculative obsession from the likes of William Herschel and Percy Bysshe Shelley, and does his bit to make his scientific forebears seem even more towering.

Finally and perhaps most importantly, the very first clerihew, written by the sixteen-year-old Edmund Clerihew Bentley, was about Davy.

*Sir Humphry Davy  
Abominated gravy.  
He lived in the odium  
Of having discovered sodium.*

So, to end, here is a new clerihew:

*Sir Joseph Banks  
Might have liked Tom Hanks,  
But his behaviour on Tahiti  
Makes him more like Warren Beatty.*