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978-0-521-56539-4 - Humphry Davy: Science and Power  
David Knight  
Frontmatter  
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# *Humphry Davy*

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***Cambridge Science Biographies Series***

Charles Darwin, *The Man and His Influence* PETER J. BOWLER

Humphry Davy, *Science and Power* DAVID KNIGHT

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HUMPHRY  
DAVY  
SCIENCE & POWER  
—♦—  
DAVID KNIGHT



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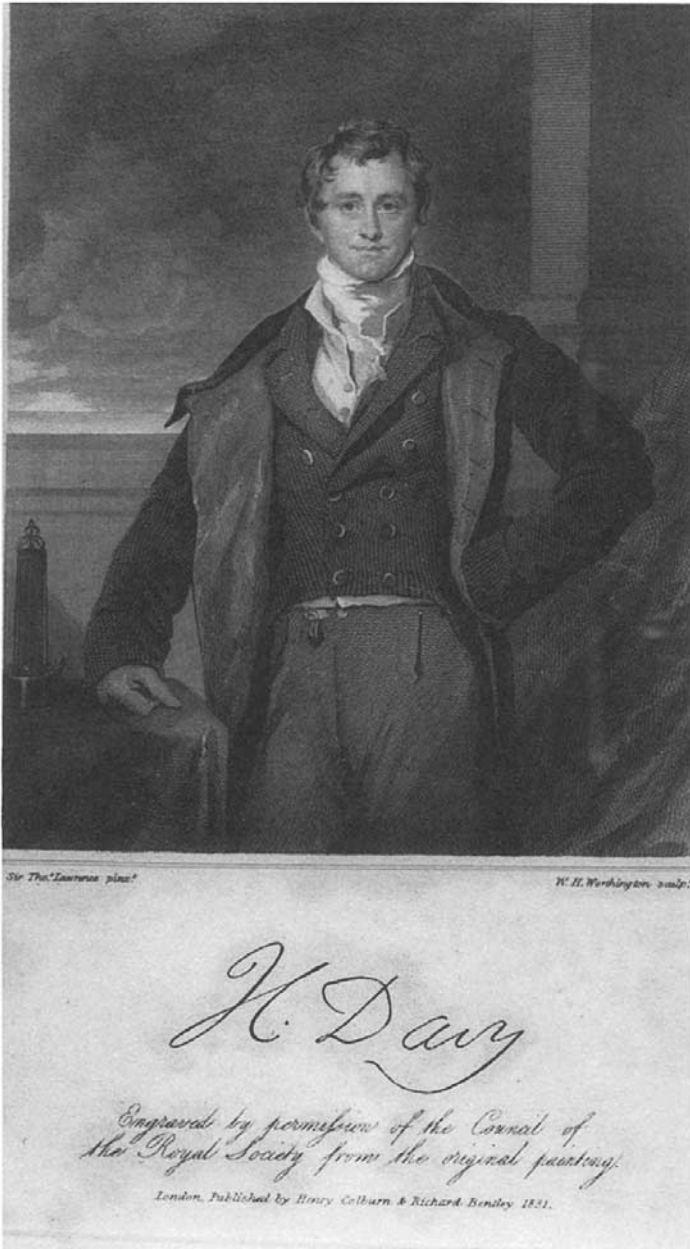
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This book is for Sarah, Harriet and Frances, who have lived with Davy for some years; and he was never an easy person to live with.

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Oh, most magnificent and noble nature!  
Have I not worshipped thee with such a love  
As never mortal man before displayed?  
Adored thee in thy majesty of visible creation,  
And searched into thy hidden and mysterious ways  
As Poet, as Philosopher, as Sage?

Not content with what is found upon the surface of the earth, [the chemist] has penetrated into her bosom, and has even searched the bottom of the ocean for the purpose of allaying the restlessness of his desires, or of extending and increasing his power.

If matter cannot be destroy'd  
The living mind can never die;  
If e'en creative when alloy'd  
How sure its immortality!

[The chemist exerts] on a scale infinitely small a power seeming a sort of shadow or reflection of a creative energy and which entitles him to the distinction of being made in the image of God and animated by a spark of the divine mind. Whilst chemical pursuits exalt the understanding, they do not depress the imagination or weaken genuine feeling.

Humphry Davy

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# *Acknowledgements*

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## *General Editor's Preface*

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Our society depends upon science and yet, to many of us, what scientists do is a mystery. The sciences are not just collections of facts, but are ordered by theory; and this is where Einstein's famous phrase about science being a free creation of the human mind comes in. Science is a fully human activity, and the personalities of those who practise it are important in its progress and often interesting to us. Looking at the lives of scientists is a way of bringing science to life.

The scientists whose lives appear in this series have been chosen because of their eminence, but the aim of the biographer is to place them in their context, writing about the times in which they lived as well as their lives. While their commitment to science, their creativity and their scepticism must be always at the back of the biographer's mind, how they earned a living, made a career and got on with family and friends are essential parts of any biography.

Davy is a wonderful subject for a biographer because he is so accessible. Though parts of his work were abstruse and difficult in his own time, he made it his business to popularize his discoveries, so that his great idea that chemical forces are electrical, making him the Newton of chemistry, seems obvious to us now. His was a first-rate scientific mind, and yet he was not troubled by the problem of two cultures:<sup>1</sup> he was the friend of poets, and wrote poetry – not just the comic verse characteristic of many later scientists – and wrote about religion. He reflected about the science he was practising and over which he came to preside. There are many places in which we can

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## PREFACE

meet him, for his ventures into applied science, and his travels, meant that his life was by no means cloistered. His was a fascinating time, as science began to have an important social role and to become specialized. Bacon, Galileo, Kepler and Descartes had a vision of a scientific revolution, but it was realized only in Davy's time (with the French and the Industrial Revolutions), and in Britain he represented this new phenomenon of powerful science. He held out against narrow expertise, but recognized and forwarded specialized societies within science. His biography is a study of science and power.

A biography is a dialogue, in which one participant is usually (and probably better) dead; it is therefore personal and cannot be definitive. To be fair, the biographer must allow his subject to speak, and I have tried to let Davy have plenty of the conversation. He was careful about the words he chose. A fascinating person to meet and to hear, he was driven both by the urge to understand and by straightforward ambition; having risen to a dizzy height, he was socially uneasy; he was no saint, but he was ready to undertake responsibility, and anxious to be useful and to be appreciated for it.

David Knight  
 University of Durham

### New publications relevant to this book include:

- Banks, R. E. R. *et al.* (ed.), *Sir Joseph Banks; a Global Perspective*, Kew, Royal Botanic Gardens, 1994.
- Bensaude-Vincent, B. (ed.), *Lavoisier in European Context*, Nantucket, MA, Watson Publishing International, 1995.
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# *Introduction*

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Biography is proving a good way of showing how science is momentous and yet accessible. We do not expect, or need, to wrestle with all the details of the specialisms underlying the way we make sense of the world. Few of us are going to be professional chemists or physicists, yet there is no reason why we should not understand what it is which makes a life in science attractive and how a career in science has become possible.

There have always been practitioners who have sought to convey the excitement of breaking the codes of nature. In the last century, the status of a man of science could depend as much on his reputation for open lecturing and readable essays as upon his research: the two had to reinforce each other, and the mere popularizer or crabbed expert commanded less respect. T. H. Huxley's irresistible style made him probably the best-known man of science in Britain in the later nineteenth century; and did not prevent him becoming President of the Royal Society.

In this, he was following a pattern set by Humphry Davy; from obscure or deprived childhoods they used science, and their ability to communicate it, to rise to social prominence. And on the way, not only did they make discoveries of great importance, but they aroused a real enthusiasm for science. Huxley's science became momentous because of its Darwinian connections; Davy's, both because it illuminated matter and force, and also because it was useful. In his researches, applied science became a reality. The promise that science, and not just com-

## INTRODUCTION

mon sense, would transform the world was fulfilled in the safety lamp.

Davy and Huxley both claimed that science was common sense; but they qualified it. Davy added that analogy was the key to understanding, as can be seen in his own work on chlorine, and then iodine, and analogies became apparent only to the experienced and dedicated. To Huxley, common sense must be trained and organized; accordingly he devoted his life to scientific education, and to scientific societies. Science is not the same as common sense for either of them, though neither would be happy with the paradoxical beliefs which ever since the time of Copernicus have been associated with parts of physics.

Through studying someone like Davy, who did his best to make his science and his life in science intelligible to outsiders, we can get a good idea of how science works; even in our very different world, which has developed out of his. We shall find that science is not wholly unlike other activities, and can be appreciated even when we have no great urge to join in. Scientists are, or should be, as approachable through biography as writers, churchmen or politicians. For Davy, professing was a performance art, as it still can be with advantage; he was disappointed that few of those who heard his lectures, emerging dazzled and elated, wanted to follow him into science – Michael Faraday being the great exception. But for us, as for his original audiences, he can nevertheless be a good guide to what science, an activity with a long history, is about; and to its social context.

I am particularly delighted that Cambridge University Press has taken over this series of accessible biographies and will be expanding it, enabling us to get inside some of those men and women whose understanding of how nature works has changed the world.

*David Knight, 1995*