Introduction

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Biography today occupies an unusual, perhaps even an uncomfortable, place in our culture, being one of the most popular and yet least studied forms of contemporary writing. Readers in their tens of thousands consume biographies avidly and offer publishers a sure market for the life stories of writers, musicians, film stars and sporting heroes. ‘The Age of Biography is Upon Us’ announces a recent article (Bowker 1993), as anyone will know who steps into a bookshop or glances at the year’s best-seller lists. A 1994 poll on reading habits in Britain showed biography to be the most popular category of non-fiction book, selected as their favourite by 19 per cent of readers, a number matched by the most popular category of fiction, ‘romance’, and considerably ahead of contemporary fiction, read by just 14 per cent of readers (D.S. 1994; see also Beauchamp 1990 for US data). The market for biography is by no means restricted to the ‘popular’ end of the spectrum: a typical issue of the Times Literary Supplement (21 October 1994) carried a lead review devoted to a biography of William Tyndale, an extended review of a biography of Mrs Dorothy Jordan, and reviews of biographies of Kremlin wives, and Nikolai Bukharin’s widow: in its listings, there were more entries under ‘Biography’ than under ‘Fiction’, ‘Politics’, ‘Literature and Criticism’, more than in any other category. ‘Biography’ has become a potent selling tag for all manner of books that in a different age would have been shelved alongside works of history, geography, natural history and bibliography: subtitles such as ‘biography of a book’, ‘biography of a small town’, ‘biography of a breed’, ‘biography of Miami Beach’, ‘biography of a tree’, ‘biography of Victorian marriage’, ‘biography of an eye’ and ‘biography of England’ now aspire to the sales achieved by biographies of human beings, alive, dead, famous or unknown (Epstein 1987: 82–3; also Skidelsky 1987).

Biography has become so common that one is compelled to consider whether there is not, now, too much of it. With nearly 250 biographical
studies of Samuel Johnson, 60 or so of Charles Dickens and over 75 of James Joyce, the question has merit. Smaller academic industries are devoted to producing commentaries and biographies on major scientists such as Isaac Newton, Charles Darwin and Albert Einstein; consequently, Darwin is memorialised and celebrated with editions of his volumes of notebooks, with a massive project to publish all his known correspondence and, in support, his diaries and editions of his collected and single writings (in first, variorum, facsimile, abridged, illustrated and collector’s editions) and, since 1990, three substantial biographies with a fourth, projected to run to two volumes, on its way. A volume has even appeared (with another promised) comprising Darwin’s annotations to his own books. Under these circumstances, one can sympathise with the biologist Richard Lewontin who set out to review yet another biographical addition by noting with some exasperation that his university library already held over 180 books about Darwin’s life and work (Lewontin 1985, p. 18). The facts have surely now been established beyond doubt — perhaps to the point of monotony. Are any further biographies really needed, except to satisfy a public’s apparently unquenchable thirst?

There is, in fact, always room for more biographies of Darwin, but we say this with some measure of reluctance and even some misgiving (and, since we publish in this book an illuminating ‘metabiographical’ reflection by James Moore of his experience in co-writing the acclaimed Darwin (1991), some hesitation as well). While new studies can and should serve the useful function of correcting errors and filling gaps in earlier accounts, not all have done so, and the worthwhile discovery of archives, letters and materials is not always integrated into new biography. Leaving this aside, new studies are needed as each new age redefines itself, and fresh questions come consequently to be asked of biography. Our moral and epistemological beliefs shift and our assessments of personality and behaviour follow suit. So, too, do our ideas about what biography is, can be, and should do.

So much for the prescription; but scientific biography has not always registered these sea changes. Many biographies still lie, so to speak, on the beach, untouched by philosophical and historical developments, offering stale narratives of heroism, selflessness and devotion to duty. As for our misgiving, this arises from the fact that as the biographical spotlight is turned again on Charles Darwin or Charles Dickens, other, equally fascinating figures remain in the shadows: myriad biographical Darwins, but only one modern biography of his ‘bulldog’ companion, T.H. Huxley. To date, dozens of other prominent scientific figures from the period have received no serious and sustained
biography whatsoever: Alfred Russel Wallace, William Buckland, Robert Chambers, John Tyndall, Adam Sedgwick, David Brewster, to name but a few.

Those who write about biography are in the main those who write biography, and it is still comparatively rare to find professional critics or historians at conferences on biography or in the columns of newspapers and literary reviews. Over half the participants at a landmark meeting in 1988 were professional biographers not academics (Charmelley and Homberger 1988). Professional biographers ask questions about biography that fit uneasily with the concerns of the modern academic community. Evoking a range of traditional or personal motives, biographers have been concerned with the usefulness and truthfulness of biography, with its status as art and literature, and with its claims to be able to present an authoritative or even definitive life. They speak and write unconsciously about ‘interesting’ lives, ‘telling good stories’, ‘righting a wronged reputation’, and about how best to evoke personality. Critics, meanwhile, hardly consider biography at all and, when they do, it is in terms of narrative, rhetoric and discursive structures. A glance at many recent books and articles of literary criticism suggests that the very terms with which biographers set about their work have been put into question (and scare quotes): ‘truth’, ‘authenticity’ and ‘definitive’. Not surprisingly, even the most conscientious of modern biographers consider themselves liberated rather than impoverished by the lack of attention their work commonly receives from critics. ‘We are blessedly free and untrammelled’, writes Richard Holmes, author of biographies of Shelley, Coleridge and Savage, in contrast to novelists who ‘are now doomed to work within a roaring factory of academic criticism, a ceaseless chatter of thesis and theory, and the distant pounding of the Great Tradition’ (Holmes 1990: 21). Leon Edel, a rare combination of biographer and critic, declared in 1981 that no biographical criticism worthy of the name exists, that is to say, no criticism that connects with the interests and concerns of the writers (and readers) of biography (Edel 1981: 10).

What makes this gulf perplexing is that biography has recently emerged, or rather reemerged, as a genre of writing with considerable similarity to the novel, a subject of perennial interest to modern criticism. It is not only that biographies have begun to capture a general readership, once exclusively associated with ‘Fiction’, and that biographies are often displayed alongside novels, but that some of the once hard-and-fast distinctions between the two have broken down (see Kaplan 1994). Many distinguished writers have
recently been drawn across the boundaries between fiction and biography — one thinks of A.N. Wilson and Peter Ackroyd, and of the superlative novels by John Banville on Copernicus (1976) and Kepler (1981) — while novelists have become fascinated with the activities of the biographer at work, as witnessed in Julian Barnes’ Flaubert’s Parrot (1984) and in Antonia Byatt’s Possession (1990), a beguiling tale in which hero, heroine and villain are all conscience-tortured biographers on the trail of truth.

More germane to readers of this collection is the large gap between working biographers and historians. For example, our widening knowledge of the Victorian era has not yet made a profound mark on biographies of Victorian men and women. Biographers excel at the evocation of Victorian personalities — even Queen Victoria herself, in Elizabeth Longford’s sensitive study — without taking much account of the broader historical trends and meanings. Indeed, a recent ‘intimate biography’ of Victoria by Stanley Weintraub (1987) is more preoccupied with the Queen’s medical details, with sex, pregnancy and depression than with any public activities like wars, elections and Acts of Parliament. Except for the distinctively nineteenth-century ring to her ailments, she might have suffered in the late twentieth century instead of the late nineteenth century.

**Biography and the history of science**

In the early twentieth century history of science was still largely informed by a biographical approach: for example, Philipp Lenard’s Great Men of Science: a History of Scientific Progress (1933) (see also Ireland 1962; Kragh 1987: 168). But as history and philosophy of science became professional academic pursuits — roughly after 1940 — most of the influential theoretical frameworks relegated biography to the sidelines. The positivist philosophers of science were not interested in the process of discovery; they regarded such speculations as fraught with psychological pitfalls and argued, instead, that the defining features of science lay in the rigorous method by which it verified results and tested theories. One consequence of this approach was a view of the history of science as an steady accumulation of knowledge; particular truths added to a larger edifice of established truths. In 1865, the French physiologist, Claude Bernard, who accepted the more critical parts of Auguste Comte’s positive philosophy, anticipated this outlook: ‘in this
fusion [of successive truths], the names of the promoters of science disappear little by little, and the further the advances of science, the more it takes an impersonal form and detaches itself from the past’ (Bernard 1957: 42, cited in Daston 1992: 613). The assumptions here were interestingly betrayed in the remark of H. W. Carr, the biographer of Gottfried Leibniz: ‘The history of philosophy is essentially biographical. We cannot dissociate the philosopher from his system in the same way that we are able to dissociate the scientific discoverer’s discovery from the scientific discoverer himself’ (Carr 1929: 203, cited in Hankins 1979: 9). Of course, the historiography of science that followed in the years after Carr’s observation — such as the work of Edwin Burtt, Alexandre Koyré, and E. J. Dijksterhuis — did not abstract scientific thought so brutally from its intellectual context, but in its concern with deep metaphysical structures, it did not encourage biography.

The sociology of science had similar implications for biography. Robert K. Merton’s work began within the ancient genre of prosopography — or collective biography in the tradition of Plutarch, and later Francis Galton and Alphonse de Candolle (Galton 1869; Candolle 1873; Mikulinsky 1974). Merton correlated the beliefs and attitudes of a group of seventeenth-century English Puritans who pursued scientific interests (Merton 1938; on prosopography, see Shapin and Thackray 1974; Pyenson 1977; Kragh 1987: chapter 16). But his subsequent work, and that of the sociological programme he initiated, demoted any close study of individual scientists in favour of an analysis of the social norms and conventions governing the scientific community (Merton 1973). Thus since the 1940s a concern with the ‘merely personal’ has been seen as peripheral to the aim of understanding the scientific enterprise as a collection of institutionally based cognitive disciplines. From the 1970s, scholarly developments in the social history of science and sociology of scientific knowledge, and inquiries indebted to either Thomas Kuhn or Michel Foucault, have confirmed this situation.

The result has been that, in contrast to the case of literary biography, critical commentary on scientific biography has had to begin with a defence of the enterprise. This is the task Thomas Hankins accepted in his essay of 1979 which sought to bring biography in from the cold. Hankins asked historians of science to reconsider biography as the close testing point for broader theories of scientific thought and progress. Another affirmation came from Larry Holmes who saw biography as the entry point for any study of the ‘fine structure of scientific creativity’ (Holmes 1981, also 1974). But
as Susan Sheets-Pyenon recently noted, Hankins was wary of the difficulties of integrating the non-scientific parts of a subject’s life into the kind of intellectual biography he recommended (Sheets-Pyenon 1990). This continues to be a difficult issue: Pearce Williams, who wrote a biography of Michael Faraday in 1965, recently expressed doubts about a comfortable marriage between biography and any strongly sociological history of science, suggesting that the latter approach puts blinkers on our study of great and complex individuals, limiting what a detailed biography might discover. Citing a worst case scenario, he referred to Bruno Latour’s The Pasteurization of France (1988) as ‘Hamlet without the Prince of Denmark’ (Williams 1991: 210; for other comments on biography, see Zoubov 1962).

Over the last decade or so there does seem to have been a resurgence of interest in scientific biography among historians of science (for a recent comment see Garfield 1990, 3). Notable examples of the genre include Dorinda Outram’s Georges Cuvier (1984), Richard Westfall’s Never at Rest: a Biography of Isaac Newton (1980), Thomas Hankins’ Sir William Rowan Hamilton (1980), Dorothy Stein’s Ada (1985), Walter Moore’s Schrödinger (1989), Crosbie Smith and Norton Wise’s Energy and Empire: a Biographical Study of Lord Kelvin (1989), Geoffrey Cantor’s Michael Faraday (1991), Adrian Desmond and James Moore’s Darwin (1991), Arthur Donovan’s Lavoisier (1993), James Gleick’s Genius: the Life and Science of Richard Feynman (1992) and Stephen Gaukroger’s Descartes (1995). Some cautiousness about biography as the professed form of inquiry is still noticeable in some of the full titles of these and other works, which make it clear that the person is a key to some larger theme (see also Geison 1978; Yeo 1993).

Nevertheless, to different degrees, these authors seem to agree that biography, informed by investigation of primary sources and painstaking chronological detail, can yield the integration of intellectual and institutional narrative, of cultural and economic life, that is now valued in social and historical studies of science. If this is so, it suggests a shift from the earlier view in which biography was usually regarded as a point of resistance to these more general accounts of the Nature of science. Some recent interest in collective biography might be another sign of change (see Elliott 1982 and 1990; Abir-Am 1991).

This book takes its cue from these developments and offers a set of chapters by historians who consider a large span of questions about scientific biography. They do this from a variety of perspectives: some from a reflection on their own experience as biographers; others from an awareness of the role
of biographies as primary material for historical study; others still from an interest in the status of biography as a source of exemplars for both the practice of scientific communities and for the public rhetoric of science. In this introduction, we discuss some questions about the nature of scientific biography in relation to literary biography, the historiography of science, and the public representation of the scientists, prompted by our reading of the various chapters in the collection.

**Self and science**

Science, by self-proclamation and popular repute, is objective knowledge. This status distinguishes it from other kinds of knowledge or belief, such as philosophy, literature and sociology. Conventionally, science proceeds by the application of a rigorous methodology, designed to eliminate personal bias through a variety of procedures such as replication, controlled studies, peer review and so on. Whether science is, indeed, objective knowledge, whether it proceeds by the application of a singular method, and whether the relation of the producer of knowledge to that knowledge distinguishes science from other knowledges are questions that have been the subject of considerable recent debate, spilling over into heated disputes in the pages of newspapers and popular books (Broderick 1994; Wolpert 1992; Fuller 1994; Gross and Levitt 1994).

A striking piece of evidence for the disinterested, objective status of science is the peer-refereed scientific paper, which in its structure, substance, language and idiom suggests that science is a rational, unambiguous and impersonal route to the acquisition of knowledge. That this suggestion is over-simplistic, erroneous, even fraudulent, was the remarkable claim of Peter Medawar a generation ago (Medawar 1964). Medawar showed the fragility of many of the claims for the special status of scientific knowledge; and his paper has often been cited in the recently burgeoning field of studies examining the ways in which scientific prose seeks to persuade readers that science is a mode of truth whose claims faithfully represent the order of nature (see for examples Gross 1990 and 1991). In a study of scientific writing, David Locke says that 'science has made a shibboleth of denying the expressivity of its own discourse', while Gyorgy Markus explores the way in which the 'inscribed author' of the scientific article appears as an 'anonymous performer of methodologically certified, strictly regulated activities and as a detached observer of their results — without any further personal
identifying marks beyond possession of the required professional competence’ (Locke 1992: 59; Markus 1987: 13).

Those who do not practise science encounter its claims to objective status principally through non-scientific media: listening to a scientific expert introduced on radio or being guided across the universe by a science broadcast on television. Sometimes, but more rarely, they may find scientific expertise deployed once again as objective knowledge, in a law court or a doctor’s surgery. Few lay people have direct access either to scientists or to their technical writings, but for over two centuries they have had easy access to biographies and autobiographies of scientists. These offer a rare opportunity for lay people, uninvited to the laboratories and conferences, and effectively barred from access to professional journals, to listen to scientists in their own words. How do these scientists speak, and appear?

The question has been infrequently asked, but it is worth asking since it provides us access to some of the particular features of scientific biography, a genre which has several features in common with autobiography. In 1968, the chemist Erwin Chargaff wrote of scientific autobiography as belonging to a ‘most awkward literary genre’, written by people who typically lead ‘uneventful lives’ and offering ‘the account of a career, not of a life’. Chargaff added that the career is likely to lack personal interest because, contrary to the situation in the arts, ‘it is not the men that make science; it is the science that makes men’ (Shortland 1988: 172). This succinctly expresses science’s proclaimed objective status, in a form that refers explicitly to autobiography, while at the same time suggesting that scientific biography, too, is likely to ‘lack personal interest’. The point can be rendered in any number of ways: scientists are typically dull, but science is exciting; the life of a scientist is a life of public acts, not private, still less intimate, details; without Milton there would have been no ‘Paradise Lost’, but the universal law of gravitation would have been discovered by another if Isaac Newton had never been born. It was the essayist and journalist Walter Bagehot, author of an improbably titled classic Physics and Politics (1872), who gave one of the best expressions of the scientist’s irredeemable boringness. Prefaced by the remark that some people are ‘unfortunately born scientific’, Bagehot wrote in 1856 that those with an interest in ‘shells, snails, horses, butterflies’, who have ‘delighted in an ichthyosaurus, and excited at a polyp’, who are ‘learned in minerals, vegetables, animals’, are the consequence of an ‘absence’ within their constitutions of ‘an intense and vivid Nature’. Scientific men are by
nature dull and frigid and calm. ‘[A]n aloofness and abstractedness cleave to their greatness. There is a coldness in their fame, [whereas] the taste of most persons is quite opposite’ (Bagehot 1965–86, 1: 397–98).

Such ideas marginalise the creative involvement of individual scientists in the production of knowledge. They underscore several well-known scientific autobiographies and present us with something of a paradox: that scientific autobiographies seem to present accounts of the role of the individual at odds with that offered in scientific biographies, indeed, with those presented in the conventional discourse of science which celebrates individual achievement. A few examples of scientific autobiography may serve to introduce the paradox.

Einstein’s Autobiographical Notes, published in 1949 when he was 70, came into being through the unrelenting persuasion of an editor, and presented a formal, ‘intellectual’ portrait. In a short piece entitled ‘Self-Portrait’, written thirteen years earlier, Einstein had explicitly declared his lack of interest in the emotional tangles of self-knowledge: ‘Of what is significant in one’s existence one is hardly aware, and it certainly should not bother the other fellow. What does a fish know about the water in which he swims all his life?’ (Einstein 1949: 5). Not surprisingly, Einstein’s autobiography consists almost wholly of physics and with the exception of an occasional sentence, all but the first six or seven pages are inaccessible to the non-scientist. Here, though, reading carefully and piecing together some fragmentary clues, we can grasp what Einstein calls ‘a definite form’ to his life and its promptings not only ‘from the outside’ (1949: 95, 5). Einstein speaks of early religious yearnings, for example, linking these to his attempt to free himself from the ‘chains of the “merely-personal”, from an existence dominated by wishes, hopes and primitive feelings’ (1949: 17). but always returns to a benchmark definition of himself as a man of intellect, not emotion or experience: ‘The essential being of a man of my type lies precisely in what he thinks and how he thinks, not in what he does or suffers’ (1949: 17).

If Einstein’s autobiography suggests a transcending of self, Freud’s shows that he struggled with issues of selfhood throughout his life. Einstein situates his character in the public realm, finding fulfilment in the realm of thinking outside the traditional literary personality. Freud’s An Autobiographical Study offers a comprehensive history of a man’s work, thought processes, and ideas, first published in 1925 (Freud 1959). The text is masterly: succinct, accessible, compelling. But any reader of modern biography will be
struck by what Freud leaves out of this, in Porter’s terms, ‘deed-oriented deadpan autobiography’ (p. 215). In the 1935 postscript to the second American edition, Freud comments on the relation between life and career in his autobiography:

Two themes run through these pages: the story of my life and the history of psycho-analysis. They are intimately interwoven. This Autobiographical Study shows how psycho-analysis came to be the whole content of my life and rightly assumes that no personal experiences of mine are of any interest in comparison to my relations with that science. (Freud 1959: 71)

The ‘story of [Freud’s] life’ that is ‘intimately interwoven’ with the history of psychoanalysis is the account of his professional life, for there is no personal life to speak of in the autobiography. What then is intended by the statement that psychoanalysis ‘came to be the whole content of my life’? The suggestion appears to be that Freud’s whole life was his professional life, but if this is the case, the reference to ‘personal experiences’, makes no sense at all. The threads of truth, self-justification, self-erasure and evasiveness knotted together here are difficult to unravel. Freud might be suggesting bewilderment with the boundaries of the public and private or, just as likely, his rejection of the personal life. But while this may be part of the style of science, it is hardly what we might anticipate from Freud (see also Young-Bruehl 1993).

Our last example of scientific autobiography, Charles Darwin’s (1974), is probably the best known. This is as surprising a document, in its own way, as the memoirs of Freud and Einstein. Composed towards the end of his life (and first printed in 1887) when he could have looked back over honour heaped upon honour and a world-wide reputation, Darwin’s autobiography does everything to minimise his contribution to the process and progress of science. Darwin tells us, for one thing, that he was never very intelligent or far-seeing – mediocre at school and university, generally dull. He informs us how he gradually lost all aesthetic sense, all enjoyment of poetry and literature, how he became ‘like a man who is colour blind’. In fact – and here is the organising device that Darwin uses to construct his life story – he presents himself as a humble collector of facts (1974: 24). He approaches the world of nature (perhaps, we suppose, his life also) with the emotional blankness of a collector of evidence devoid of expectation, prior knowledge or subjectivity. Little wit (bad at school), not much imagination (can’t fathom