Davy's Biographers: Notes on Scientific Biography

Biographies of Humphry Davy demonstrate shifting patterns in scientific biography since 1800.

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Biographies of scientists have been written for almost as long as there have been scientists to write about. To be sure, some important figures—William Hyde Wollaston is an obvious example—have escaped close scrutiny, but for others a spectrum of biographical treatments exists, traversing decades and even centuries. The biographer of a scientist stands in a peculiar middle position. On the one hand his tale is limited by the thoughts and deeds of his chosen subject; on the other hand, he is limited, consciously and unconsciously, by the demands and appraisals that his own age makes of science and of scientists. Furthermore, he is limited by what his contemporaries demand of biography itself. Data dismissed by one era as too specialized, recondite, or obscure may appear to a later era to be proper material for detailed study. As these forces interact, patterns in scientific biography change. The subject of a scientific biography may in one treatment seem shadowed, in another, exposed in bright detail, much as a piece of sculpture appears to change as light plays upon it.

Although the genre scientific biography has long existed, there does not seem to have been any analysis of the changing patterns (*1*). This article is an attempt to indicate some of the patterns of the last century and a half. While it is based on the reading of a large number of scientific biographies concerning a great number of individuals (*2*), all the examples are taken from works treating the life of Sir Humphry Davy (1778–1829). Davy has received assiduous biographical attention—both in full-length books and in innumerable shorter essays, including those classed by Sarton as meretricious little works (*3*).

It is easy to see why Humphry Davy had so much biographical attention. While still very young he captured recognition by his repeated demonstration that nitrous oxide (laughing gas) could be safely inhaled and had a surprisingly exhilarating effect. At the Royal Institution his graceful and compelling lectures, illustrated by dramatic pyrotechnics, excited an intellectual and fashionable audience. His powers as a lecturer were so widely acclaimed that when he suffered a serious illness, contracted while inspecting part of the Newgate Gaol for His Majesty's Government, hourly bulletins on his progress were posted on the doors of the Royal Institution to comfort his worried admirers. His opinions were sought, on questions of manners, morals, literature, and art, in at least one avant-garde "little magazine," *The Director* (*4*). He was a social lion for several London seasons. Most important of all, the international scientific community eagerly awaited announcements of his discoveries and published details of his experiments. Despite the fact that France and England were at war, Napoleon awarded him a prize for his electrochemical discoveries of 1806. The Swiss journal *Bibliothèque britannique, ou recueil extrait des ouvrages anglais périodiques* . . . [subsequently called *Bibliothèque universelle*] for months at a time devoted entire issues to translations of his papers. In a few short years Davy had isolated potassium, sodium, calcium, barium, strontium, and magnesium and had demonstrated the existence of fluorine, boron, and aluminum. He was publicly challenging the authority of the French chemists Gay-Lussac and Thénard, long regarded as the guardians of chemistry, the heirs of Lavoisier. Young Davy was the darling of the British intellectual, social, and artistic world.

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Davy's Earliest Biographer

When a biographer first "had at him," making Davy one of the "Public Characters of 1809," in a series of essays not unlike the "Profiles" of today (*5*), Davy had actually been a public character for some time. The anonymous author evidently had attended Davy's lectures at the Royal Institution but had had no other contact with him. The essay is rich in biographical blunders and lacking in the kind of detail that would have been available to the most casual of acquaintances. The pamphlet has had no influence on subsequent biographers; it is doubtful that many Davy scholars even know of its existence. But in the context of the subject of this article it merits attention because it illustrates many of the characteristics of scientific biographies written in the beginning of the 19th century.

The anonymous author disclosed an ambivalent attitude toward science and scientists that was characteristic of the period. He claimed to regard science with quasi-religious fervor, and scientists as intellectual monks who had abjured the world, sleep, and food.

> [The scientist] becomes pale over his crucibles; his labours occupy the hours that ought to be dedicated to repose, and yet, scorning every selfish motive, his discoveries . . . [are] generously promulgated for the use and benefit of mankind. Hail science! thou deity that hath civilized the world, we bend willingly at thine altar. Truth, reason and experiment are the only priests who minister in thy temple.

Lofty as these sentiments were—and it must be recalled that they were not unique—they were somewhat spoiled by the author's subsequent dismissal of scientific phraseology as "the common refuge of little minds." The author meant to be complimentary—to praise Davy for his avoidance of the demeaning phraseology—but in fact the preserved texts and abstracts of Davy's lectures show that he never spared his audience intellectual pain when it came to presenting scientific ideas and using technical terminology (*6*). In rejecting

scientific phraseology and, by implication, the more technical aspects of natural philosophy, the author of the pamphlet, in spite of the views expressed in his opening paragraphs, voiced some of the snobbish disdain with which scientists early in the 19th century were occasionally regarded.

Further, he ascribed to Davy views on nonscientific matters which coincided closely with his own or which he thought his readers would find appealing. He claimed, for example, that Davy admired Anaxagoras more than Plato (subsequent critics were to dismiss Davy as too Platonic) and that he subscribed devoutly to the tenets of the Church of England (a future biographer would claim that Davy leaned toward Methodism). Moreover, Davy, according to this author, thought the national character of the English vastly superior to that of the French. Doubtless he did, but the author went on to say that Davy thought the spirit of civil liberty engendered by the revolution had expanded the horizons of the French and had given dignity to their conduct. Whether Davy in 1809 did hold this view is open to question. What is of special interest is the fact that the author thought Davy's supposed opinions on nonscientific subjects were important and would interest his readers. Here again the author was characteristically a biographer of the early 19th century. Sometimes one is hard put to discover in those biographies just what the subject was doing scientifically, but his political and religious views, as well as his views on general cultural questions, leap from every page. Part of this emphasis was due to the limited competence of the biographers in matters scientific—generally their training and interests lay elsewhere—but part of it arose from a nagging doubt that science, with all its stress on laboratory operations, was a profession suitable for gentlemen.

Despite all the biographical inaccuracies in the "Public Character" essay, its author closed on a prophetic note.

> We, for our own part, entertain some fears lest the liberality of [Davy's] sentiments should give offence to narrow minds . . . and his generous and noble notions conjure up a host of ignorant, but powerful enemies.

That Davy had many enemies is clear, yet not all of them were "conjured up" by his "generous and noble notions." Moreover, the enemies were responsible for some, though not all, of the biographical attention he subsequently received.

To be a "Public Character" in 1809 was for Davy a secondary honor. By the time he died, at the age of 50, he had received the highest testimonials the world could then provide, but every honor seemed to bring with it another group of detractors (*7*). Davy was knighted by the King a few days before his marriage. Hardly had the sword been lifted from his shoulder when it was rumored that his wife-to-be, the wealthy widow Jane Kerr Apreece, bought the knighthood for him because she could not bear to be called just plain "Mrs." Certainly it was true that a request for the elevation had to be made to the King, and the request may indeed have been initiated by Mrs. Apreece. On the other hand it should be remembered that Davy's own government was one of the last to honor him. When Davy was elected president of the Royal Society in 1820, succeeding the powerful Sir Joseph Banks, he was accused of chicanery and politicking. This opinion was not universal; there was a staunch group of Fellows who held that Davy was worthy of the chair. When Davy reported his discovery of the principle of the safety lamp, he was alleged to have stolen the idea from an engineer, George Stephenson. The allegation was false. When he married Mrs. Apreece he was accused of marrying her for her money. The accusation was probably groundless. When he reported the principles of electrochemical corrosion and they were applied to prevent the decay of the copper bottoms of almost all the ships in the British Navy, Davy was charged with trying to make sure that the fleet would sink. No charge could have been more wide of the mark. During his struggles with the French chemists he was accused of interpreting his own experimental findings, and those of others, with intellectual carelessness and innocence. Of course this was pure nonsense.

Davy's Obituary and the Official Biography

Charges and countercharges such as these swirled about Davy long after his death, serving to color his obituaries and, incidentally, insuring lively biographies. As president of the Royal Society, Davy had revived the earlier practice of reading memorial notices about recently deceased Fellows at the Anniversary Meeting. At Davy's death, Davies Gilbert, engineer and Member of Parliament for Cornwall and Davy's successor in the chair, continued the observance (*8*). Gilbert had been a patron of the teen-aged Davy, and the notice contained a long reference to his early recognition of Davy's genius and his subsequent influence on Davy. He provided a charming vignette of a very youthful Davy, his head filled with chivalric tales of derring-do, rescuing fair maidens from dire fates. Gilbert did not mention the quarrel that kept the two men apart for several years, but in his earnest fashion he did attempt to still some of the controversies about Davy. He predicted that Davy's proposals concerning principles of electrochemical corrosion would some day be found to be quite correct. In this Gilbert showed a measure of courage, for Davy's contemporaries were inclined to view the work he did in this field as a gigantic scientific failure and a great source of jokes.

As if to make up for the necessary brevity of Gilbert's obituary notice, an anonymous author wrote a biographical article which appeared in the *Spectator* shortly after Davy's death. Gay and anecdotal, it was obviously written by someone who had known Davy and who had some insight into matters of chemistry (*9*). The identity of the author was a poorly kept secret; he was Dr. John Ayrton Paris, of Cambridge, sometime resident of Penzance (Davy's birthplace), Fellow of the Royal Society, and a generally well-liked medical man-about-town. On the strength of this essay, Dr. Paris was selected as Davy's "official" biographer and given an advance of £1000. Lady Davy offered him her cooperation. In 1830 Paris's two-volume *Life of Sir Humphry Davy* appeared (*10*). Superficially the work was typical of the "lives and letters" volumes of literary biography (*11*). However, it had some curious features, which placed it outside the mainstream of biography and, at the same time, guaranteed Davy an equivocal place in the history of science. The very qualities which led to Paris's selection as "official" biographer produced the problems in which the work abounds.

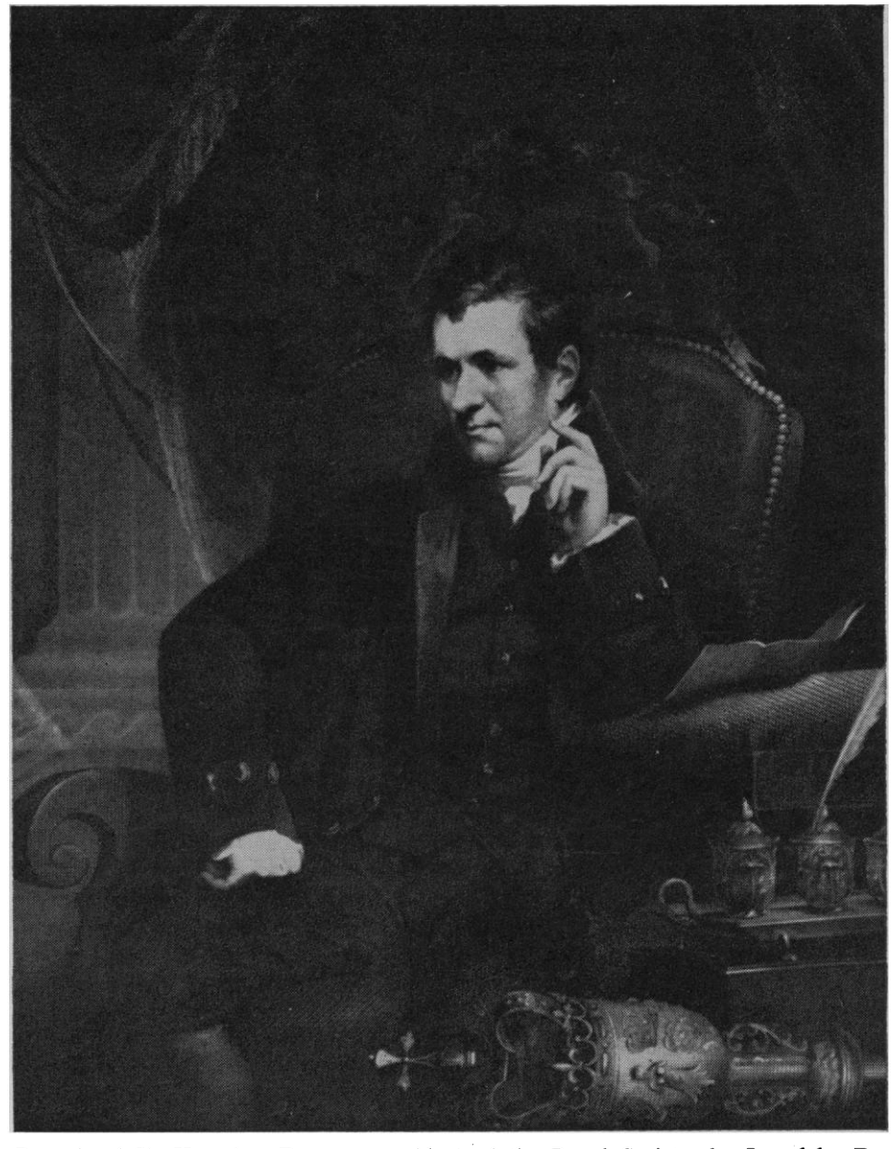
In scientific biography, as in every kind of biography, the biographer's own bias and personality can intrude to such an extent that the subject

matter is warped. Davy suffered in this way at Paris's hands, and the damage was especially acute because Paris's writing style was fresh. The prose of the biography sparkles; there are even long passages of apparently abundant praise for Davy. Nonetheless, an account of two incidents in which Dr. Paris was involved is in order, as an illustration of the kind of thing of which he was capable.

One is a matter of record, the other, a report from a reliable source. Paris wrote a guidebook to Mount's Bay in Cornwall. In it he stated that the fumes of the arsenic works were so deleterious that horses which grazed nearby soon lost their hooves. When asked if this were, indeed, true, he is reported (*12*) to have said, "Never mind, never mind, it reads well at all events." "Reading well" was a serious matter with Dr. Paris.

The other incident concerns the case of the King *vs.* Penneck, heard at the Cornwall assizes in March 1816. One Dr. Penneck, long-time resident and medical practitioner of Penzance, had punched Dr. Paris, short-time resident and medical practitioner. Penneck defended his intemperate behavior as just retaliation for Dr. Paris's continually omitting the letters "M.D." after Penneck's name in published lists. The court found Penneck guilty (*13*). Paris, in letters reproduced in his life of Davy, omitted the "M.D." after Penneck's name and changed "Dr." to "Mr." Penneck. He made similar slight changes in source material throughout the work. Their effect was compounded by his inventive tampering with the texts of many letters he elected to reproduce. He corrected syntax, adjusted literary style, combined pieces of letters, cut sentences, omitted reagents from chemical reactions, and, in general, offered his readers careless reproductions. Furthermore, Dr. Paris, noted for his witty and amusing stories, in the biography twisted anecdotes about Davy to produce a special point of view. Some of the twists are relatively harmless; others are so prejudicial as to appear malicious.

As a scientist, Davy emerges from Paris's fluid narrative in a most peculiar light. In case after case Paris mistook Davy's reasons for conducting experiments, even though Davy had taken the trouble to say what he was about. In case after case Paris misrepresented or half-represented Sir Humphry's findings. Where Davy's thought patterns were complex or difficult, Paris ignored them. As a result, Paris's *Life* generated the impression that Davy worked in an intellectual vacuum. Sir Humphry was made out to be a particularly lucky scoundrel who happened, without intent, upon the most marvelous of experiments. Paris implicitly condemned Davy as a charlatan, a parvenu, and a social climber. While it is not necessary that a biographer admire his subject, or all facets of his subject's personality, in order to write a good biography, it certainly is necessary that he try, when writing about a scientist, to understand what the subject was doing in his laboratory and what was going on in his mind. Paris failed spectacularly in these respects. Many of his contemporaries failed in some of the same ways, although on a less grand scale, in writing biographies of scientists. There can be little doubt that Paris was the most unsuitable kind of biographer a scientist could have, yet his narrative is generally regarded as reliable and definitive.



Portrait of Sir Humphry Davy as president of the Royal Society, by Lonsdale. Dr. John Davy preferred this portrait above all others. [Courtesy Lyman Churchill Newell Collection, Boston University]

Davy's Brother as Biographer

Davy's next biographer, his brother, Dr. John Davy, adored Sir Humphry. When he read Paris's work he was outraged. It was, he said, a damaging canard, and he set out to produce a line-by-line refutation (*14*). Dr. Davy, 12 years his brother's junior, had learned basic natural philosophy in Sir Humphry's laboratory. Moreover, Sir

Humphry had paid his brother's way through medical school in Edinburgh. In some of the scientific battles into which Sir Humphry had been drawn, his end of the fight had been carried out in Dr. John Davy's name. It was inevitable that Dr. Davy would seek to salve the wounds inflicted on Sir Humphry's reputation by Dr. Paris.

John Davy, an army doctor, had no ear for nuances of phrase; he needed someone to do the editing that Sir Humphry had usually done for him. Dr. Paris's misrepresentations were frequently twists or slight manipulations. To restore Sir Humphry's tarnished image, a graceful writer who would start afresh was needed. Blinded by his anger, Dr. Davy did not truly understand the situation, and he had neither the patience nor the writing talent for the job. He bluntly poured out his objections to Dr. Paris's effort, stated flatly that all biography should be eulogy—a view in which many of his contemporaries concurred—and then proceeded, gadfly fashion, to correct Paris here and there. As a result, Dr. Davy's two-volume *Memoirs of the Life of Sir Humphry Davy* is a tirade, the work of an incensed man trying to deify an adored brother who in his view could do no wrong.

Paris and Dr. Davy had one characteristic in common: a readiness to alter the record. Dr. Davy altered chiefly by deletion, brightening his hero's image more through reticence than through rhetoric. When faced with the knowledge that Sir Humphry had wanted to make money from his scientific work through partnership in an industrial concern, Dr. Davy removed the tell-tale reference from a letter he reprinted. Was Sir Humphry's scheme for heating the drafty House of Lords a failure? It was, but Dr. Davy averred that the plan had never been adopted. When Sir Humphry described his Norwegian trip, he wrote, in his diary:

> We were invited by the father and elder brother of the young man whom we brought from Frederickstadt to dine and spend the evening. The name of the family was Trané: they were very kind to us. One of the daughters was very pretty, and spoke French and English, and was accomplished; she was engaged they said to a young A[r]till[er]y Officer: this was the most educated Norwegian beauty I had yet seen [.] I slept in the house. After supper I had a singular compliment paid to me by the master of the house, which from the degree of refinement of the party must have been a joke. "One of these young ladies must sleep with you; they must cast lots." He spoke English very ill, but this was his meaning. I took leave, and slept soundly. The servant maid I found up in the morning was so civil, that I suspect her virtue was not of the most severe kind. The whole family appeared kind and hospitable. During the night before I fell asleep I heard the murmuring of the water fall.

Dr. Davy quietly deleted the passage. Admittedly maidens that appear too acquiescent have little to do with the intellectual achievements of a scientist, and too many murmuring waterfalls can have as soporific an effect on a reader as they had on Sir Humphry. But when all such observations are removed—and Dr. Davy was at pains to remove them—a cardboard paragon has replaced a man.

Biographers of any age face a universal problem: What should be included in writing a biography? By and large, Dr. Davy and his contemporaries resolved the problem by deleting all references that might conceivably be construed as personal. Sociological observations—and the passage quoted above falls into that category—while welcomed by an earlier generation, were, in the middle of the century, silently removed. Dr. Davy held the view, then current, that what went on in the recesses of a man's mind was his own affair, one into which the public must not pry (*11*, p. 223), and he extended this view to include Sir Humphry's scientific work. After he had corrected Dr. Paris's errors of date or place and printed chunky excerpts from Sir Humphry's works, he went no farther; it was not proper, he thought, to discuss his brother's intellectual motivations or experimental aims. He pleaded always the prejudices of a brother. Dr. Davy's omissions, unlike Dr. Paris's, did not imply lack of understanding; Dr. Davy understood as well as anyone could what Sir Humphry's experiments were about.

Victorian biographers sought, in the opening chapter and the two final chapters of their works, to make up for the polite omissions of the middle chapters. At the outset they explored every facet of family and home influence which might have helped to form the character of their subject. They attempted, too, to describe any unusual manifestation of special talent that the subject might have displayed while very young. Here Dr. Davy was on far firmer ground than Dr. Paris, for his mother must often have dwelt on details of his illustrious brother's development. Traditionally the penultimate chapter in a biography contained the death-bed scene, full of agonizing detail, real and imagined. Dr. Davy was not himself in the Swiss hotel room the night of 29 May 1829, when Sir Humphry died, so he could only quote the servant who had last spoken to him. He remedied the deficiency by discussing the possible causes of death with clinical candor. Dr. Davy's final chapter likewise fit the pattern his contemporaries demanded. After summarizing in detail his brother's posthumously published works, Dr. Davy swept together a catalog and analysis of Sir Humphry's personal characteristics. We are told that Sir Humphry was five foot seven, had stocky legs, a "sanguine" temperament, a "light" speaking voice, and a nonmusical ear. True to form, testimonials about Davy's high character and firm moral purpose follow, but then Dr. Davy introduces a switch on the pattern. He appends further testimonials to sustain his views of Dr. Paris's calumny.

Dr. Davy faced another difficulty. It was well known to contemporaries that Sir Humphry and Lady Davy did not get on well, and that some of Sir Humphry's actions reflected his domestic strife. His wealthy widow, socially prominent in her own right and prominent in scientific circles in her husband's right, regarded Dr. Davy as a rival. She had cooperated to a limited extent with Dr. Paris. To Dr. Davy she gave nothing. Nor, while she lived, could anything be written to describe Sir Humphry's matrimonial difficulties. Twenty-six years after Sir Humphry's death, and about a month after Lady Davy's, Dr. Davy finally had access to some of his brother's more personal papers. Again he attempted to repair the damage Paris had done and to tell what he could of his sister-in-law. The short volume *Fragments and Literary Remains* (*15*) shows that age had mellowed Dr. Davy's temper but had not improved his writing style. So inarticulate was he on the subject of Lady Davy that, in several paragraphs, he conveyed only the information that the lady had a remarkably quick temper (*16*). Despite all of Dr. Davy's efforts (*17*), Dr. Paris's two volumes were still regarded as definitive. Dr. Davy's works were cranky and crabbed, and, as a result, largely ignored. Paris determined Sir Humphry's reputation, but it was Dr. Davy's performance that served to fix it. Generations of unwary readers have been trapped between them.

The "Self-Help" Biographers

As the Victorian age ripened, Sir Humphry became an attractive subject to another group of biographers, those preaching the virtues of self-help. He was taken as a prime example of a poor boy who catapulted to exalted social rank through hard work and moral rectitude. Special veneration was due him for his technological achievement in designing the miners' safety lamp. By refusing to make money from the sale of the lamps (Davy published the design; several enterprising gentlemen engaged in the manufacture) he had done his duty to mankind and contributed to the progress of the Empire and the world. Authors found his life inspirational, particularly for youngsters thought to be in need of uplift and guidance. Biographies of this stamp, in which Davy was either the sole subject or one of several, went through many editions, and it must be assumed that they were widely read (*18*). Most of them derived almost entirely from Dr. Paris's narrative, for Paris's sprightly anecdotes could be excerpted to adorn what might otherwise be a plain tale. Again, Davy was not unique in being so treated, but he was unique in the number of times his life was described in the rags-to-riches-through-virtue-and-grit context.

Among literary figures and artists, self-help biographers did not make nice distinctions about whom to include in their compilations (*19*), but a scientist, to be included, must have done work which had practical application. Technological advances were usually described in terms of the benefits mankind derived from them, particularly if those benefits affected transportation or improved the lot of work animals. The precise nature of the technological contribution was rarely discussed; the device was described merely as "an improvement upon" an existing machine. Had the scientist worked upon a problem or made a discovery which appeared to have little immediate practical application, the work was tersely cited as work upon "the riddle of nature." The phrase was ubiquitous. It was hardly new, but the self-help biographers made it their touchstone. Riddles admit of an answer, usually surprising or clever, and that answer is available to anyone with the wit to apply himself to its discovery. The moral tales stressed precisely this attitude toward science. For a present-day reader hardy enough to tackle them, the works attest to the means by which a career in science was urged on bright, willing lads.

As the 19th century waned, new demands were made of biographers: scientists and science were regarded in a somewhat different way. Davy's reputation was caught in the currents of change, too. Sir Thomas Edward Thorpe, British chemist and historian of science, produced the one-volume *Humphry Davy, Poet and Philosopher* (*20*). Thorpe studied both Dr. Paris and Dr. Davy with great care. He felt compelled to say, in his introduction, that he was on the side of Dr. Davy!—perhaps the first time in many years that anyone had noticed that there were sides to take. Thorpe also sought out new material, some of a personal kind, but most of it about Davy's scientific work. In one sense Thorpe's book may be regarded as a logical extension of a self-help biography; while Thorpe did no preaching, he was much concerned with assignment of priority in the safety-lamp controversy. The overall effect is greater than this, however, for, in describing the priority squabble, so judicious is Thorpe's tone that, had the evidence favored George Stephenson, doubtless he would have stated it with equal candor.

Thorpe's inclusion of some of the more personal materials partially dispelled the cardboard-paragon image with which Dr. Davy had endowed his brother, although reticence lingered still. In writing of Davy's courtship, Thorpe reprinted several notes and letters that had passed between Davy and Mrs. Apreece and then announced to the reader that "the world has no concern with their tender confidences." Thorpe did not share an earlier generation's enthusiasm for the "riddle of nature," although he did not reject hard work as a factor in Davy's phenomenal success. Relying in part on transcriptions, by H. Bence Jones, from Davy's notebooks, Thorpe summarized many of Davy's achievements, choosing to emphasize his creativity and scientific insights. Davy he regarded still as a "fortunate" scientist, and he concluded his book with a quotation from an earlier era (*21*):

> We look upon Sir Humphry Davy as having afforded a striking example of what the Romans called *a man of good fortune;* whose success . . . was not however the result of accident, but of ingenuity and wisdom to devise plans, and of skill and industry to bring them to a successful issue. He was fortunate in his theories, fortunate in his discoveries, fortunate in living in an age sufficiently enlightened to appreciate his merits. . . .

Biographer Thorpe was not alone in underlining "good fortune." Davy and others chosen as subjects for biography after about 1880 emerged closely resembling a late-Victorian ideal for scientists. While technological improvements were still given considerable emphasis, theoretical work was increasingly discussed. There was a diminishing tendency to let the subject speak for himself, through the use of bulky excerpts from printed papers, and some effort was made to interpret the scientist's work and to indicate how that work fitted into the activities of the wider scientific community.

"Psychological" Biography

Then something happened which threatened to reverse Davy's emerging reputation. Biographers in all areas became aware of Freud's personality studies. Scientists came to be regarded as men of genius whose mental activity was amenable to psychoanalytic study. Dr. Wilhelm Ostwald, Nobel laureate and distinguished German pioneer in physical chemistry, had a life-long interest in the history of science. He brought to his work tremendous vitality, a passion for order, and years of reflection on the metaphysical implications of the concept of energy. At the turn of this century physical chemists were reaping the harvest from their long endeavor to establish limiting cases for chemical and physical systems. It was an exceptionally profitable endeavor, one which made it possible to correlate apparently recalcitrant phenomena and to order a vast number of thermodynamic data. Ostwald used psychological constructs to order the craft of scientific biography, to show that different ranges of "psychic energy" produced different kinds of scientific personalities. He was especially intrigued by the manifest differences in personality between Sir Humphry and his protégé Michael Faraday. In a paper, "Psychographische Studien," subsequently incorporated into a much-translated and widely circulated book, *Grosse Männer*, he defined "limiting cases" for scientific behavior (*22*). He characterized a "romantic" scientific personality on the basis of what he knew of Davy, and a "classical" scientific personality on the basis of what he knew of Faraday. With the person-

ality limits defined, Ostwald then wrote a Davy biography clearly proving that Davy was a "romantic" scientist. Ostwald sought no new information about Davy, basing his work almost exclusively on that of Dr. Paris. It is a tribute to the caliber of Davy's scientific work that his reputation was not completely obliterated by Ostwald's efforts. But the damage was indubitably great. Thorpe's sounder beginnings had been passed over, and to Sir Humphry the epithet "romantic" was firmly affixed.

Scientific Biography and Stracheyism

It is not surprising that biographers of scientists were aware of psychoanalytic discoveries, just as biographers of authors, statesmen, and artists were, but it does seem extraordinary, at first glance, that scientific biography escaped that other post-Victorian biographical influence, "Stracheyism" (*23*). Some scientific biographies were written in mocking terms to expose a particular scientist's moral littleness or his muddleheaded pretensions, but they were relatively rare (*24*). For one thing, scientists did not suffer from overinflated reputations in the way that a statesman, a general, a moral crusader, or an educator often did. Scientists dirtied their hands, and therefore their work smacked of the trades; only a few decades earlier a career in science had been advertised as the way of advancement for a bright, poor boy. Furthermore, science dealt either with prosaic subjects, like disease, bacteria, and the slow course of human evolution, or with matters —such as the hidden forces operating between those invisible constituents of matter, the atoms—so arcane that there was little to debunk. Moreover, the lives and work of scientists provided far less material for fascinating and romantic exposés—the other aspect of Stracheyism—than the lives of starving or drunken or sexually libertine poets and artists. This is not to say that there have not been scientists who starved or drank more than they should, or lived licentiously, but in the mind of the public the scientist seemed far from "romantic," unless one harked back to the attitudes of an earlier era and viewed him as a man with monk-like qualities. When popular biographers took this tack they usually emphasized the "quest" aspects of a scientist's work; titles that included words like *hunter* and *search* were common. The word *magic* was often used in discussion of useful laboratory discoveries.

Davy escaped such treatment in the popular biographies, but subsequent works about him reflected the general loosening that Stracheyism brought to all biography. Reticence, especially about the workings of a man's mind, disappeared. Not only was inquiry into the genesis of scientific ideas acceptable, it was requisite. The biographer read his subject's notebooks, papers, letters, and monographs closely, then organized and interpreted them. For Davy the task was begun by J. C. Gregory (*25*). The title *The Scientific Achievements of Sir Humphry Davy* shows that Gregory did not regard the work as a life at all, but it is, nevertheless, a kind of biography. Gregory considered the nonscientific parts of Davy's life only insofar as he deemed them to have been influential in Davy's development as a scientist. To be sure, Gregory concentrated more upon the results than upon the means by which they were achieved, but he quietly discarded Dr. Paris's oblique aspersions and focused his attention upon Davy's published papers. Ostwald's strictures seem not to have bothered him overmuch. Unfortunately, the edition was small. Gregory's book seems to have nearly disappeared from Davy literature and from library shelves.

The publication of Davy biographies continued. About two decades after the appearance of Gregory's book, James Kendall wrote a life of Davy for adolescents (*26*). It was free of the pious simpering of the "self-help" biographies, but Kendall took Paris and Dr. Davy as his chief sources, and he refers to Thorpe. He took note, too, of Ostwald, and classed Davy as "romantic." For readers on the Continent, Wilhelm Prandtl translated Thorpe's short work into German (*27*). This may have helped to disperse some of the "romantic" cloud in which Ostwald had half-hidden Sir Humphry. The Russian author Mogilevskii produced a short biography, *Gemfri Devi* (*28*), derivative from Thorpe, Dr. Davy, and, of course, Dr. Paris. None of these works included any appreciable quantity of new or forgotten material, but all of them revealed a "new" attitude. Sermonizing disappeared completely; Davy's scientific thought processes were regarded as interesting. In each case the author was trying to provide a picture of a man.

A contemporary Davy biography is Anne Treneer's *The Mercurial Chemist, A Life of Sir Humphry Davy* (*29*). Cornish by birth, and trained in the humanities, Miss Treneer chose to emphasize Davy's activities as a minor member of the Romantic school of poets and his connections with Coleridge, Southey, Wordsworth, and Lamb. She sought out some new material, chiefly from Davy's correspondence with these men; pointed out Davy's Cornish characteristics; and refuted some of Paris's more obvious slanders. In selecting biographical detail she decided to eliminate consideration of most of Davy's scientific endeavors; she reverted, instead, to a post-Strachey romanticization, viewing Davy primarily as poet in order to provide overtones of literary drama.

Deciding what to omit may be the chief problem for 20th-century biographers. By now, biographers have decades of scholarship and vast library resources to tap. Writers of scientific biography have an additional advantage over their colleagues in other areas, for the biographer of an experimental scientist can account minutely for his subject's time. When Sir Humphry writes, for example, that he weighed 5 grains of a salt and placed it in a clean, dry receiver, one has some notion of how long it took him to find the salt, weigh it on a balance, clean the receiver, dry it, add the salt, and make the seal. If anything, the scientific biographer can deduce almost too much. The interesting point—the thing the biographer must strive to discover—is what the subject was thinking while he carried out his more routine tasks, and what led him in the first place to decide that a particular operation was worth while and meaningful. These decisions on the part of the scientist are the crux of the matter; for the biographer they are both a joy and a tribulation. While it would be tidy and simple to think that every "scientific" decision has its basis in something equally "scientific," we know that this is not always the case. Scientific ideas are often produced, selected, and nurtured chiefly because they fill an esthetic need, and esthetic needs are determined and conditioned by many factors. Victorian biographers placed their chief emphasis on early training as the primary conditioning agent, but con-

temporary biographers cast their nets far wider. The scientist's education, the equipment and specimens available to him, his knowledge or ignorance of prior art, his command of languages, and his mathematical creativity—all these the 20th-century biographer certainly takes into account. Of more subtle but perhaps equal importance to the biographer are the scientist's notions about the relationship between God and man, his position in the social scheme of things, the state of his health, the state of his reputation, his philosophical bias, and even his prejudices. All these factors can contribute in small or great ways to the development of a scientist, and to the ideas which he entertains.

Nor can the scientific biographer, except at his peril, ignore his subject's errors of judgment or his poor theorizing. Inadequate theories, careless experimentation, "wrong" results, and twisted or naive interpretations have been as decisive for the course of the history of science as theories, experiments, and results which today we call "right." A biographer who failed to mention, in writing of a subject from an earlier era, theories and experiments now classed, for whatever reason, as outmoded would make the subject appear empty-headed and uninteresting. The biography of a scientist becomes engrossing when it permits us to watch a mind at work, and to do this it must present the scientifically "bad" as well as the "good" (*30*).

Science has not moved continuously forward, nor has it developed in the way that, in the light of hindsight, we can see would have been most efficient. In the past it proceeded almost in secret in the minds of many men. Biographies are the stuff of the history of science. One of the charms of science is the fact that we cannot predict, given an initial state, where changes will come, or when. Nor can a final, definitive biography of a scientist be written, and for somewhat the same reasons. Patterns in scientific biography have shifted and are shifting still. Biographers and scientists alike find their fulfillment in the work of their successors.

References and Notes

1. The term *scientific biography* is occasionally used to designate biographies which are psychoanalytic in orientation. Here it is used to include biographies written about men or women who were practicing scientists, without regard to the author's use of psychoanalytic devices. Such usage is in line with that which designates as "literary biography" lives of men of letters, without judgment on the literary merit of the biographical work. Richard D. Altick, in *Lives and Letters* (Knopf, New York, 1965), traced the course of literary biography. In this article I have relied on his general interpretations. Leon Edel's *Literary Biography* (Doubleday, New York, 1959) was also of help.
2. John T. Merz [*A History of European Thought in the Nineteenth Century*, vol. 1, *Scientific Thought* (Dover, New York, 1965), pt. 1, pp. 278–81 ff.] provides plausible explanations as to why relatively few scientific biographies were published on the Continent during the first half of the 19th century. But there is no accounting for the fact that many of the English scientific biographies written during this period were by members of the lesser clergy with livings in remote parts of Great Britain.
3. G. Sarton, *The Study of the History of Mathematics* (Dover, New York, 1936), pp. 23–25.
4. Sir Humphry Davy contributed three papers to *The Director: A Literary and Scientific Journal*: "The Causes which have impeded the Progress of Antient Art"; "The Gaelic Poems in Ireland"; and "Parallels between Art and Science." Dr. Davy included only the third in his *Collected Works of Sir Humphry Davy*. While the articles were originally printed anonymously, it was hinted in the final issue of the short-lived journal that Sir Humphry was the author, and he was positively identified as the author by Thomas Frognall Dibdin, who had been editor of *The Director*, in his *Reminiscences of a Literary Life* (London, 1836), vol. 1, pp. 249–53.
5. *Public Characters of 1809–1810* (London, 1809), pp. 552–85, 587.
6. See, for example, *Sketch of Mr. Davy's Lectures on Geology delivered at the Royal Institution. From Notes taken by a Private Gentleman* [Thomas Allan] (1811?) (in the British Museum).
7. J. Z. Fullmer, *Chymia* **8**, 147 (1963).
8. D. Gilbert, *Phil. Mag.* **7**, 38 (1830). A very graceful obituary address was delivered by Baron Georges Cuvier, *Eloges-Historique, prêcêdès de l'éloge de l'auteur par M. Flourens* (Ducroc, Paris, 1834?), pp. 321–56.
9. Anon. [J. A. Paris], *The Spectator* (27 June to 22 Aug., 1829). Collected and reprinted in *Ann. Obituary* **14**, 39 (1830).
10. J. A. Paris, *The Life of Sir Humphry Davy, Bart., LL.D., late President of the Royal Society* . . . (Colburn and Bentley, London, 1831).
11. R. D. Altick, *Lives and Letters* (Knopf, New York, 1965).
12. G. C. Boase and W. P. Courtney, *Bibliotheca Cornubiensis* (Longmans, London, 1874), vol. 2, p. 651.
13. Report of the Cornwall assizes of March 1816, *The West Briton* (Mar. 1816).
14. J. Davy, *Memoirs of the Life of Sir Humphry Davy, Bart., LL.D., F.R.S.* (Longmans, London, 1836).
15. ———, *Fragmentary Remains, Literary and Scientific, of Sir H. Davy . . . with a Sketch of his Life and Selections from his Correspondence* (Churchill, London, 1858).
16. Research has shown that Dr. Davy wrote from personal experience.
17. Dr. Davy also edited *The Collected Works of Sir Humphry Davy* (Smith and Elder, London, 1839–40), in nine volumes, the first of which is another biography of Sir Humphry. It is essentially the same as the *Memoirs* (*14*), but with all the passages referring directly to Dr. Paris's work deleted. The other eight volumes have always been regarded as the definitive works, although they are not complete. Dr. Davy entirely neglected papers in some journals; he made selections from others. He ignored, too, all the parliamentary publications of which Sir Humphry was sole or joint author. For a listing of some of his omissions see J. Z. Fullmer, *Chymia* **9**, 97 (1964).
18. H. Mayhew, *The Wonders of Science; or young Humphry Davy (the Cornish Apothecary's Boy, who taught himself Natural Philosophy, and eventually became President of the Royal Society): The Life of a Wonderful Boy, written for boys* (Bogue, London, 1855; ed. 2, 1856) (Kent, London, ed. 3, 1858); "D. D.," *The School Days of Sir Humphry Davy; or Deeds Speak Louder than Words* (Dean, London, 1862); Anon., *Biography of Self Taught Men* (Nelson, London, 1869), pp. 177–91; G. L. Craik, *Pursuit of Knowledge under Difficulties* (London, 1858), vol. 2, pp. 127–45. This is a sampling of the better efforts in the "self-help" category.
19. There are compilations that include Lord Byron and Thomas De Quincey as examples of "poor" boys of firm moral character who achieved literary distinction.
20. T. E. Thorpe, *Humphry Davy, Poet and Philosopher* (Cassell, London, 1896). See also H. Bence Jones, *The Royal Institution* (London, 1871), for transcriptions of passages from Davy's private notebooks.
21. "O.," *Amer. J. Sci.* **17**, 217 (1830).
22. W. Ostwald, *Psychographische Studien I. Humphry Davy* (Veit, Leipzig, 1907), reprinted from vol. 6 of Ostwald's *Annalen der Naturphilosophie* and subsequently reprinted in *Grosse Männer* (Leipzig, 1909 and 1919).
23. The term *Stracheyism* refers to Lytton Strachey's statement of biographical aims in the introduction to his *Eminent Victorians* (Putnam, London, 1918) and to his own approach in that book, in *Queen Victoria* (Harcourt Brace, New York, 1921), and in subsequent works. See, in this connection, R. D. Altick, *Lives and Letters* (Knopf, New York, 1965), pp. 281–300.
24. Davy escaped such treatment, but D. McKie [*Nature* **135**, 878 (1935)] has commented on Paris's too Stracheyan attitude. Sarton, in *The Study of the History of Mathematics* (see *3*), deplored the debunking scientific biography.
25. J. C. Gregory, *The Scientific Achievements of Sir Humphry Davy* (Oxford Univ. Press, London, 1930).
26. J. P. Kendall, *Humphry Davy: 'Pilot' of Penzance* (Faber, London, 1954); E. O. Carrier's *Humphry Davy and Chemical Discovery* (Watts, New York, 1965) was written for an even younger audience.
27. W. Prandtl, *Humphry Davy: Jöns Jacob Berzelius* (Wissenschaftliche Verlagsgesellschaft, Stuttgart, 1948).
28. B. Mogilevskii, *Gemfri Devi* (Moscow, 1937).
29. A. Treneer, *The Mercurial Chemist, A Life of Sir Humphry Davy* (Methuen, London, 1963). Sir Harold Hartley is writing a 200-page biography of Davy.
30. L. P. Williams discusses the same point in another connection in *Victorian Studies* **9**, 201 (1966).

31. I thank the Guggenheim Foundation, the American Council of Learned Societies, and the Tulane University Council on Research for their Fellowship support during my studies of Davy. Miss Betty Mailhes of the Tulane University Library gave unfailing help.