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Beginning: the Meaning of Life

Near the end of his life Humphry Davy wrote:

Ah! could I recover any thing like that freshness of mind, which I possessed at twenty-five, and which, like the dew of the dawning morning, covered all objects and nourished all things that grew, and in which they were more beautiful even than in mid-day sunshine, – what would I not give! – All that I have gained in an active and not unprofitable life. How well I remember that delightful season, when, full of power, I sought for power in others; and power was sympathy, and sympathy power; – when the dead and the unknown, the great of other ages and distant places, were made, by the force of the imagination, my companions and friends; – when every voice seemed one of praise and love; when every flower had the bloom and odour of the rose; and every spray or plant seemed either the poet's laurel, or the civic oak – which appeared to offer themselves as wreaths to adorn my throbbing brow.¹

When he wrote this, Davy was approaching fifty: brilliant and enigmatic, he was one of the most respected and most disliked men of science ever. He had risen from obscurity to the presidency of the Royal Society, from which he had just retired because of failing health. Behind him lay a triumphant career in science, practical and theoretical. No wonder he has attracted biographers.

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Every historian is engaged in conversation with predecessors to make sense of the materials that have come down from the past; and the biographer is engaged in dialogue with his subject as well. Davy himself gave us reason to see his life as the transformation of an imaginative, enthusiastic and immensely attractive young man into the most brilliant chemist of the age, and then into a glum and lonely old man, with a brilliant future behind him. In science the great ideas often come early, and those who do not die, like a Nelson or a Wolfe, at the height of their powers run the risk that the second half of their lives will be an anticlimax, even though they may turn out to be able administrators and managers of science, advancing it less directly but no less importantly.

Davy died in 1829 when he was fifty; had he died ten years earlier we would have got from contemporaries a very different, and much more favourable, view of him. By then everyone was a Davyan, accepting that science can and must be applied to increase the comforts and reduce the dangers of life, as he did with the miners' lamp. In 1818 Davy had received a baronetcy for this invention; his researches on potassium and chlorine had changed the course of chemistry; his reputation was secure. Then in 1820 Sir Joseph Banks, who had been President of the Royal Society throughout Davy's life, died in office, and Davy was chosen as his successor. It seemed a further triumph at the time, the summit of his career reached at only forty-one, but his reign was not happy.

By 1829 it was clear that Davy's life was a story not only of prodigious success but also of its costs. One of the ways in which the sciences came to rival the churches in the nineteenth century was as vehicles for social mobility, and Davy's biography is a 'log cabin to White House' story. It might have appealed to Samuel Smiles, but he never wrote it, perhaps because it had too much pure science in it. Henry Mayhew, famous for his studies of those on the margins of Victorian society in *London Labour and the London Poor*, did write a biography of Davy, in the form of the life of a wonderful boy for boys to read.² This is close to being a work of improving fiction, but it is hard to resist the true story of a boy from a remote corner of England, whose father was an often-unemployed woodcarver and whose widowed mother had to support the family by opening a milliner's shop, becoming President of the Royal Society.

Mayhew was perhaps wise to concentrate on Davy's youth. Other biographers too have emphasized his Cornish connections – notably in recent years Anne Treneer, whom I once had the pleasure of meeting and whose *Mercurial Chemist* places Davy in his provincial context.³ It

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is sobering to contemplate the transition from the delightful young man in Penzance and then Clifton, where he befriended Southey, Coleridge and Wordsworth, to the grumpy and isolated exile in his last years, admired but friendless, frustrated when not sozzled with opium,⁴ and apparently proving once again that illness need not enoble. 'You talk of honours;' he wrote to his wife on 1 August 1827, 'I ought to have been made a Privy Counsellor and a Lord of Trade as my predecessor was.'⁵

Davy's early friends had feared that success, especially in London, would corrupt him: and at the Royal Institution (which he made into the first research institute in Britain, supported by his lectures) he did indeed become the ally, or perhaps the tool, of the landed interest.⁶ He lectured on agriculture to audiences of 'improving' landowners during a war when food was short; but the Royal Institution then supported his chemical researches. Landed and professional men and their wives and daughters flocked to hear his lectures on science. Even his research seems sometimes to have been done in public, with a rapidity often baffling to onlookers, in a tradition that goes back to Robert Boyle and others in the seventeenth century. Soon no intellectual dinner party was complete without him.

There is no doubt that Davy loved a lord; and when in 1812 he was knighted – the first man of science to be so honoured since Newton – and then married a wealthy bluestocking widow, a cousin of Sir Walter Scott, his transition to the upper classes seemed to have been achieved. But things were not so easily done in Regency England, a very class-conscious society. The first biography, by J. A. Paris, exposed some of Davy's gaucheries.⁷ Paris was a doctor, a Cambridge graduate with Cornish connections, who remarked that 'no man ever soared, like an eagle, to the pinnacle of fame, without exciting the envy and perhaps the hatred of those who could only crawl up half way', and who aimed to include 'the common frailties of genius' in a true portrait. His life of Davy was based upon materials supplied by Jane Davy; the marriage had not turned out happily (she was very formal, and in letters to his brother John,⁸ Davy referred to her as 'Lady Davy') but they remained affectionate, particularly when, as usually in Davy's last years, they were apart – and then they corresponded frequently.⁹

John Davy thereupon wrote another biography, in response to the sneers of those who considered themselves to be Davy's social if not intellectual superiors and to show how he had risen through merit. After Lady Davy's death, John published a supplementary volume of *Fragmentary Remains*, which include many of Davy's letters to her.¹⁰ He had meanwhile published Davy's *Works*¹¹ in a handsome nine-

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volume edition as part of a life's work of vindicating his brother's reputation. Anybody writing about Davy is greatly in his debt.

Davy's marriage was childless, like Banks' and Faraday's, and John was one of the three or maybe four young men to whom he was something like a father, training them in science; the others were his cousin Edmund, who went on to a career in chemistry in Ireland, and Michael Faraday. With Faraday, to whom Mayhew's book is dedicated, we see a relationship that went sour; they were two prickly men, who had come a long way socially, but Faraday (whose father was a blacksmith) had never known Davy except as Sir Humphry. Davy failed to realize that Faraday had, by 1820, grown up as a man of science, and from being a generous father became an oppressive one. Faraday saw Davy in a quite different and cooler light by the 1820s, and found little to respect;¹² he had also become a full member of the strict sect of Sandemanians, while Davy's religion was rather vague, though intense and personal. Like a family quarrel, this was something from which neither man emerged with much credit. Davy knew what older men of science ought to do, as shown in this poem written about eagles in 1821:

The mighty birds still upward rose,
 In slow but constant and most steady flight,
 The young ones following; and they would pause,
 As if to teach them how to bear the light,
 And keep the solar glory still in sight.
 So went they on till, from excess of pain,
 I could no longer bear the scorching rays;
 And when I looked again they were not seen,
 Lost in the brightness of the solar blaze.
 Their memory left a type, and a desire;
 So should I wish towards the light to rise,
 Instructing younger spirits to aspire
 Where I could never reach amidst the skies,
 And joy below to see them lifted higher,
 Seeking the light of purest glory's prize.
 So would I look on splendour's brightest day
 With an undazzled eye, and steadily
 Soar upwards full in the immortal ray,
 Through the blue depths of the unbounded sky,
 Portraying wisdom's boundless purity.
 Before me still a lingering ray appears,
 But broken and prismatic, seen thro' tears,
 The light and joy of immortality.¹³

But as often in human affairs, practice fell short of theory.

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In a series of scientific lives Sir Harold Hartley (himself a distinguished applied scientist with a scholar's feeling for history) tackled Davy.¹⁴ His interest was in Davy's 'scientific work', and particularly in 'trying to explain why, with his great genius, he did not accomplish more'; comparing him with his systematic Swedish contemporary J. J. Berzelius. It is hard to see how Hartley's account, particularly of Davy's electrochemical researches, could be bettered. But at the end of his story of this intensely creative period comes a chapter headed 'Distractions and Marriage'; the book is emphatically focused upon Davy's research. There is nothing wrong with this; a smallish book has to be focused, and what is most interesting to us about Davy is that he was a great chemist; nevertheless he was more than that, and the interest in his life does not cease with his research.

Hartley recognized Davy's romantic temperament, giving strengths as well as weaknesses, but the picture he projects of the man of science seems to come from a later period, at any rate for Britain.¹⁵ He wrote to me: 'Don't get too involved in philosophy & try to chart the major channels of advance.'¹⁶ This approach is limiting; the term 'scientist', we should note, was not coined until after Davy's death, and it is wise to be chary of it. He thought of himself as a natural philosopher or a chemical philosopher developing a world view, and not as a specialist. Science in Britain developed and was expounded in a tradition of natural theology, establishing the existence and wisdom of God,¹⁷ and by the end of his life Davy was happy to belong there.

Instead of taking a scientific career as something normal, we have to look back to a time when spending one's life in science was a curious ambition. Davy was one of the first in Britain to earn his living through scientific research, and to find how and why he lived this way is as interesting and important as to see what he did in the laboratory.¹⁸ Davy took up chemistry where Joseph Priestley had left it, but Priestley had seen himself as primarily a Unitarian minister. One of Priestley's, and later Davy's, philosophical heroes was the empiricist David Hartley, who had (typically for eighteenth-century England) rated scientific research rather low, writing of devotees of science that they were 'remarkable for Ignorance and Imprudence in common necessary Affairs' and given to 'Vanity, Self-conceit, Moroseness, Jealousy, and Envy'. Their scientific 'pleasures of the Imagination . . . come to their Height early in Life, and decline in old Age', and should therefore not be overindulged. The proper study of mankind was man, after all, with due focus on God: and its aim was to find the meaning of life.¹⁹ Davy sought to make the full-time pursuit of science compatible with the search for wisdom.

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Sir Harold warned me against treating science as an intellectual game. It is indeed a serious matter, but in Davy's time it was only just ceasing to be a kind of hobby, and successful science even now involves something like play – otherwise it becomes dull, the kind of 'normal science' that philosophers write about.²⁰ He also told me that he could make nothing of Davy's last book, the posthumously published *Consolations in Travel*, a series of dialogues in which Davy, drawing upon Royal Institution lectures and earlier writings in notebooks, tried to come to terms with providence, disease and death, and to present his world view.²¹ In his life of Davy the last ten years occupy only one chapter, 'PRS: Final Years', the terminal sixth of the book, and it is downhill all the way.

I do not believe that Hartley's is the best way to see Davy, nor how Davy, a master of narrative whose tall tales had delighted his school fellows, would have wanted his story to be told. Any drama that reaches its highest point in the middle is unsatisfactory, and if we are to make sense of our own life or anybody else's, we have to see it as developing or evolving to its end. It was not mere boundless ambition that propelled Davy towards the presidency of the Royal Society, and his published dialogues are not just the maunderings of a prematurely old man whose shaping spirit of imagination had deserted him and whose Romantic cult of youth gave him no comfort at fifty. They can be better seen as the confessions of an inquiring spirit;²² and they show us something of the eloquent dark little man (about five feet seven inches, but seeming shorter)²³ from the Celtic fringe, whose eyes were said to be too fine to be always gazing into crucibles, and who held audiences spellbound.²⁴

At the conference that marked the bicentenary of Davy's birth in 1978 June Fullmer presented Davy as a reformer, first of chemistry and then of the Royal Society;²⁵ and in 1983 David Miller gave a picture of Davy caught between hostile camps within the Society.²⁶ Davy had presented himself as a new broom after the long years of Banks, anxious to make the Society more like an Academy of Sciences, with a utilitarian emphasis, membership confined to those of scientific distinction, and close links to government and to other, more specialized scientific societies. He hoped the British Museum would be made into something more like its Parisian equivalents, the natural history materials being organized as in Cuvier's Musée d'Histoire Naturelle; and with Stamford Raffles he founded the London Zoo.

British science nevertheless, like British government, survived the 1820s largely unreformed. Davy's constituency was the Royal Institution, with its links to the landed gentry and its programme of

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high-level popularization to support research; but in the sciences the capacity to popularize is not highly regarded. To Cambridge men, escaping from a century of Newton worship and intent on catching up with French mathematics, the Royal Institution's way seemed amateurish; they longed for a society of gentlemanly specialists. Others, however, liked the clubbish and unspecialized atmosphere of the Royal Society, where those engaged full time in science could meet congenial men of rank with a genuine if mild interest in it. Davy seems to have wanted women to be able to come to some meetings. What was expected of the new President was such that nobody could have met it; Davy's popularity fell and his anger became notorious as he tried to be domineering. Red in the face, he glares at us from the huge portrait that dates from this time on the stairs of the Royal Institution.

To have a man, however able, whose schooling had been sketchy and whose upbringing had been plebeian and provincial running such a society is amazing; what is not amazing is that this experiment of Davy's did not work. He could not play the autocrat as Banks, a great landed proprietor, had done, and his social unease seemed haughtiness. His research had been solitary, and while his science was admired and he had achieved recognition, he was not loved. The important thing with social mobility, as Faraday learned partly from watching Davy, is to know where to stop.

Davy's relaxation had always been fishing, notably for salmon and trout. He was an extremely good fisherman and came to know a good deal about the natural history of fish and the insects associated with them.²⁷ He also loved to go shooting, especially for snipe, and in 1823 recruited Roderick Murchison to science: 'I fell in with Sir Humphry Davy, and experienced much gratification in his lively illustrations of great physical truths. As we shot partridges together in the morning, I perceived that a man might pursue philosophy without abandoning field sports.'²⁸ Davy's companions in these impeccably gentlemanly activities were often men of science, including the eminent chemist and crystallographer William Hyde Wollaston, whom he introduced to fishing. It was in these outdoor activities that Davy could be relaxed with friends, though, especially in his retirement, he seems to have been perfectly prepared to fish alone.

Wollaston had been a possible rival for the presidency, having taken over temporarily on Banks' death. A Cambridge man and a physician, he was greatly respected and known as the Pope because his chemical analyses were infallible. But he was shy and cautious, and his was the style contemporaries liked to contrast with Davy's: the former anxious to avoid error, the latter keen to discover truth. His lack of bedside

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manner made medicine an unpromising career, but he discovered a process for making platinum malleable and therefore available to chemists for crucibles and spatulas, and for electrodes sealed through glass. The fortune he made from this work meant that he could retire from doctoring; but Davy at the end of his life contrasted Wollaston's behaviour with his own refusal to patent the miners' lamp and thereby become wealthy: 'It was not worth his while to have died so rich; but I suppose there is pleasure in accumulating. So will W. die! with perhaps two or three hundred thousand; yet these men might have applied money to the noblest purposes.'²⁹ In 1820 Wollaston had declined a contest, thereby probably proving himself the wiser man.

Davy's presidency was not without its triumphs: he induced the King, through Robert Peel, to found Royal Medals to be awarded each year in recognition of scientific achievement; he established good relations with specialized societies; and the Council, for the first time in the history of the Royal Society, came to have on it a majority of men who had published some science. He tried to ensure that candidates for Fellowship should have scientific research to their credit, but in this as in other reforms he did not succeed.³⁰ In 1823 he thought of a scheme for protecting the copper bottoms of warships from corrosion cathodically (a principle now much used), by fastening pieces of the more-reactive metal iron to them. This promised well, but failed because weed attached itself so firmly to the protected copper that the ships sailed badly. The episode did not redound to Davy's credit, and he overreacted to jokes and criticisms.

It would be hard then, as others have noted, to see the presidency as the triumph and climax of Davy's career. Berzelius said of him that his work was 'only brilliant fragments',³¹ and this applies to his work as President of the Royal Society as much as to his researches. And the last years of ill health and wandering do not on the face of it look very promising either, especially if we believe that scientific discovery was or should have been the focus of his life. Well aware of his unpopularity, having retired after a stroke and seen himself succeeded by his former patron and Vice-President, the Cornish MP Davies Gilbert (formerly Giddy), who had never done research of any distinction, Davy might have been expected to despair. He did indeed write in his journal on 27 September 1827:

As I have so often alluded to the possibility of my dying suddenly, I think it right to mention that I am too intense a believer in the Supreme Intelligence, and have too strong a faith in the optimism of the universe, ever to accelerate my dissolution . . . I have been, and am taking a care

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of my health which I fear it is not worth; but which, hoping it may please Providence to preserve me for wise purposes, I think my *duty*, – G.O.O.O.³²

The G.O.O.O. was a form of pious ejaculation often used by Davy in this journal. He would have liked Peel to be his successor: 'He has wealth and influence, and has no scientific glory to awaken jealousy, and may be useful by his parliamentary talents to men of science.'³³

Out of this gloomy but perhaps also hopeful state came Davy's two little books of dialogues, *Salmonia* and *Consolations*, which, with his *Agricultural Chemistry*, were his writings that circulated widest. If we did not have them, we would know much less about him; but beyond that they represent the end of his odyssey. Had he died in 1827, his life would have lacked the shape that these works give it. It is by no means new to see *Consolations* as particularly important in understanding Davy and the natural philosophy of his time;³⁴ indeed, in his *elogue* of Davy for the Paris Academy of Sciences (therefore one of the first biographies) Georges Cuvier wrote:

*Le progrès de l'espèce humaine, le sort qui lui est réservé, celui qui attend chacun de nous, la destination de milliers des globes, dont à peine quelques astronomes apercevoient une petite partie, y sont le sujet de dialogues où le poète ne brille pas moins que le philosophe, et où, parmi les fictions variées, une grande force de raisonnement s'applique aux questions les plus sérieuses; on aurait dit qu'une fois sorti de son laboratoire il retrouvait ces douces rêveries, ces pensées sublimes qui avait enchanté sa jeunesse; c'était en quelque sort l'ouvrage de Platon mourant.*³⁵

Poetic imagination applied to really serious questions, the sublime thoughts of his youth, a dying Plato: it seems as though in Cuvier's view Davy had in his last work moved from science to wisdom.

Davy had himself written a rhapsody to nature:

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?³⁶

And this can, I believe, be used as a guide to his own life. He never stopped being a poet and a natural philosopher – experimenting with an electric fish when finally struck down in Rome – but he increasingly became the sage.

He believed in the importance of his message, dictating a letter to his brother after this stroke, on 23 February 1829:

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I am dying from a severe attack of palsy, which has seized the whole of the body, with the exception of the intellectual organ. . . . I bless God that I have been able to finish my intellectual labours. I have composed six dialogues, and yesterday finished the last of them. There is one copy in five small volumes complete; and Mr Tobin [his companion, whom we shall meet] is now making another copy, in case of accident to that. I hope you will have the goodness to see these works published.³⁷

To his wife, he also sent the message that:

I should not take so much interest in these works, did I not believe that they contain certain truths which cannot be recovered if they are lost, and which I am convinced will be extremely useful both to the moral and intellectual world. I may be mistaken in this point; yet it is the conviction of a man perfectly sane in all the intellectual faculties, and looking to futurity with the prophetic aspirations belonging to the last moments of existence.³⁸

John Davy duly complied with his brother's request. The only curious feature of the story is that later, when assembling Davy's *Collected Works*, he should have added to the six an unrelated fragment of dialogue on atoms and elements, which he never intruded into any separate editions of the *Consolations*.³⁹

Whatever Davy may have earlier thought about the pleasures of being twenty-five rather than fifty, he was able to face death when it came, seeing it, after suffering endured, as an escape from worn-out machinery and a way to higher things. The *Consolations* begin, like Gibbon's *Decline and Fall of the Roman Empire*, with a dream in the Colosseum – the sweet dreams of Cuvier's obituary – in which Davy meets spirits from other planets, who are living a more spiritual and intellectual life, and believes that he would join them. The universe was progressive, and his life intelligible to him as a progress towards readiness for a higher mode of existence. He would have been delighted to be compared to Plato, a sage rather than just a philosopher, and he had even organized his *Salmonia* as an ennead in the Platonic tradition, though perhaps without planning it.

We shall therefore follow Davy from his Cornish youth and his apprenticeship to a Penzance apothecary-surgeon; through his work on laughing gas in Clifton and his association with Coleridge and Wordsworth at the heart of the Romantic Movement; on to London for lecturing, for scientific discoveries and in doing applied science; becoming President of the Royal Society; writing *Salmonia*; and finally emerging as a Plato on his deathbed in *Consolations*. It was a life in science that although short was complete.