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WILBERFORCE AND HUXLEY: A LEGENDARY ENCOUNTER

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The legend of the encounter between Wilberforce and Huxley is well established. Almost every scientist knows – and every viewer of the BBC's recent programme on Darwin was shown* – how Samuel Wilberforce, bishop of Oxford, attempted to pour scorn on Darwin's *Origin of species* at a meeting of the British Association in Oxford on 30 June 1860, and had the tables turned on him by T. H. Huxley. In this memorable encounter Huxley's simple scientific sincerity humbled the prelatial insolence and clerical obscurantism of Soapy Sam; the pretension of the Church to dictate to scientists the conclusions they were allowed to reach were, for good and all, decisively defeated, the autonomy of science was established in Britain and the western world, the claim of plain unvarnished truth on men's allegiance was vindicated, however unwelcome its implications for human vanity might be, and the flood tide of Victorian faith in all its fulsome ness was turned to an ebb, which has continued to our present day and will only end when religion and superstition have been finally eliminated from the minds of all enlightened men. Even churchmen concede that it was a disastrous defeat.¹ Only Owen Chadwick strikes a note of caution, observing that the account given of the incident in Wilberforce's biography seems hardly consistent with an overwhelming defeat, and maintaining that the received account must be a largely legendary creation of a later date.²

The legend is well given in the October 1898 issue of *Macmillan's Magazine*, in an article entitled 'A Grandmother's tales'.³ In the course of this, sandwiched in between reminiscences of Florence and an incident in Merton library, the writer relates

I was happy enough to be present on the memorable occasion at Oxford when Mr Huxley bearded Bishop Wilberforce. There were so many of us that were

* [Added in proof.] Broadcast 12 and 15 Dec. 1978.

¹ David Edwards, *Leaders of the Victorian Church* (Oxford, 1971), pp. 103–4. Stanley L. Jaki, 'A hundred years of two cultures', *Culture and science* (University of Windsor, 1975), p. 3. Standish Meacham, *Lord Bishop: the life of Samuel Wilberforce* (Harvard, 1970), pp. 212–17.

² Owen Chadwick, *The Victorian Church* (2 vols., London, 1970, vol. 2, pp. 10–12.

³ By Mrs Isabella Sidgwick, *Macmillan's Magazine*, LXXVIII, no. 468, Oct. 1898, 'A Grandmother's tales', 433–4. I owe the identification to Mr Christopher Chessun, of University College, Oxford.

eager to hear that we had to adjourn to the great library of the Museum. I can still hear the American accents of Dr Draper's opening address, when he asked 'Air we a fortuitous concourse of atoms?' and his discourse I seem to remember as somewhat dry. Then the Bishop rose, and in a light scoffing tone, florid and fluent he assured us there was nothing in the idea of evolution; rock-pigeons were what rock-pigeons had always been. Then, turning to his antagonist with a smiling insolence, he begged to know, was it through his grandfather or his grandmother that he claimed his descent from a monkey? On this Mr Huxley slowly and deliberately arose. A slight tall figure stern and pale, very quiet and very grave, he stood before us, and spoke those tremendous words – words which no one seems sure of now, nor I think, could remember just after they were spoken, for their meaning took away our breath, though it left us in no doubt as to what it was. He was not ashamed to have a monkey for his ancestor; but he would be ashamed to be connected with a man who used great gifts to obscure the truth. No one doubted his meaning and the effect was tremendous. One lady fainted and had to be carried out: I, for one, jumped out of my seat; and when in the evening we met at Dr Daubeney's, every one was eager to congratulate the hero of the day. I remember that some naive person wished it could come over again; and Mr Huxley, with the look on his face of the victor who feels the cost of victory, put us aside saying, 'Once in a life-time is enough, if not too much.'

Sir Joseph Hooker supplied substantially similar accounts for the official biographies of Darwin⁴ and Huxley.⁵ He tells us

The famous Oxford Meeting of 1860 was of no small importance in Huxley's career. It was not merely that he helped to save a great cause from being stifled under misrepresentation and ridicule – that he helped to extort for it a fair hearing; it was now that he first made himself known in popular estimation as a dangerous adversary in debate – a personal force in the world of science which could not be neglected. From this moment he entered the front fighting line in the most exposed quarter of the field.⁶

The biography continues, after an account of the session on Thursday afternoon

Accordingly it was to him, thus marked out as the champion of the most debatable thesis of evolution, that, two days later, the Bishop addressed his sarcasms, only to meet with a withering retort. For on the Friday there was peace; but on the Saturday came a yet fiercer battle over the 'Origin' which loomed all the larger in the public eye, because it was not merely the contradiction of one anatomist by another, but the open clash between Science and the Church. It was, moreover, not a contest of bare fact or abstract assertion, but a combat of wit between the individuals, spiced with the personal element which appeals to one of the strongest instincts of every large audience.⁷

⁴ Francis Darwin, *Life and letters of Charles Darwin* (3 vols., London, 1888), II, 320–3, hereafter cited as *Darwin*.

⁵ Leonard Huxley, *Life and letters of Thomas Henry Huxley* (2 vols., London, 1900), I, 179–89, hereafter cited as *Huxley*.

⁶ *Huxley*, I, 179.

⁷ *Huxley*, I, 180.

Other versions from the end of the nineteenth century exist.⁸ They do not agree on details, but for the most part convey the same general impression. Some of them bewail the fact that contemporary accounts are few and fragmentary. But they do exist. Besides a number of letters to and from people in the Darwinian camp,⁹ we have a journalist's report of the proceedings of the British Association in three issues of *The Athenaeum* and a briefer one in *Jackson's Oxford Journal*.¹⁰ These accounts give a different picture. Neither of the journalists present reported those tremendous words or noted their tremendous effect. Although the opposed views of Wilberforce and Huxley on the nature of man were of great moment, and had been the topic of conversation throughout the week, and although the particular issue of the descent of man from the apes had been raised a couple of days earlier,¹¹ and although undoubtedly Wilberforce made some reference to apes, yet what he and Huxley actually said on that subject was not, in the opinion of a journalist actually reporting the debate, of sufficient interest to bear repetition.

Nor did it seem the next day sufficiently significant for Hooker to mention it in his letter to Darwin.¹² In Hooker's opinion – and the evidence of *The Athenaeum* and the opinion of Lyell¹³ support this – it was he, not Huxley, who really answered Wilberforce. Hooker had become a Darwinian and announced his conversion at that meeting. He wrote unflatteringly of Wilberforce, and then continued

Huxley answered admirably and turned the tables, but he could not throw his voice over so large an assembly, nor command the audience; and he did not allude to Sam's weak points nor put the matter in a form or way that carried the audience. The battle waxed hot. Lady Brewster fainted, the excitement increased as others spoke; my blood boiled, I felt myself a dastard; now I saw

⁸ W. H. Fremantle, *Charles Darwin, his life told &c.* (1892), p. 238; quoted in Darwin, II, 320–1. William Tuckwell, *Reminiscences of Oxford* (London, 1900), pp. 50–3; hereafter cited as *Tuckwell*. Leonard Huxley, *Life and letters of Sir Joseph Dalton Hooker*, (London, 1918), I, 522–5; hereafter cited as *Hooker*. R. G. Wilberforce, *Life of Bishop Wilberforce* (London, 1881), II, 450–1, 1882, III, *Errata*; hereafter cited as *Wilberforce*.

⁹ Hooker to Darwin on 2 July; reprinted in *Hooker*, I, 525–7. J. R. Green to W. Boyd Dawkins on 3 July; reprinted in L. Stephen (ed.), *Letters of J. R. Green* (London, 1901), pp. 42–5. Sir Charles Lyell to Sir Charles Bunbury on 4 July; reprinted Mrs Lyell, *Life of Sir Charles Lyell* (London, 1881), II, 335; hereafter cited as *Lyell*. Huxley to Dyster on 9 Sept. 1860, Huxley papers, Imperial College, London, 117 ff.; partly reprinted in Cyril Bibby, *Scientist extraordinary, T. H. Huxley* (Oxford, 1972), p. 41. George Allman to Huxley 9 July 1860, Huxley papers, 79. George Rolleston to Huxley, ? Dec. 1860, Huxley papers, 151 ff. I am much indebted to Professor Owen Chadwick for making copies of these letters available to me.

¹⁰ *The Athenaeum*, nos. 1705, 1706 and 1707, 30 June, 7 July and 14 July 1860. *Jackson's Oxford Journal*, Saturday 7 July, 1860, p. 2, col. 6.

¹¹ On Thursday, 28 June; see *The Athenaeum*, p. 26, col. i.

¹² *Hooker*, I, 525–7.

¹³ *Lyell*, II, 335; quoted in n. 41 below. See also The Rev. A. S. Farrar to Leonard Huxley, 12 July 1899, Huxley papers, 16; quoted below p. 327.

my advantage; I swore to myself that I would smite that Amalekite, Sam, hip and thigh if my heart jumped out of my mouth, and I handed my name up to the President (Henslow) as ready to throw down the gauntlet.

Although later he gave all the credit to Huxley, at the time it seemed to him and to others that it was he rather than Huxley who fought most effectively for Darwin.

The British Association has always been in part concerned to popularize science. It draws large audiences, consisting to a considerable extent, of people more interested in science than knowledgeable; and the worst that can ever be said of one of its annual meetings is that it was dull. This could not be said of its meeting in Oxford in 1860. It was, according to *The Athenaeum*, an enormous success.

Yet the main interest of the week has unquestionably centred in the Sections, where the intellectual activities have sometimes breathed over the courtesies of life like a sou'-wester, cresting the waves of conversation with white and brilliant foam. The flash, and play, and collisions in these sections have been as interesting and amusing to the audiences as the Battle at Farnborough or the Volunteer Review to the general British Public. The Bishop of Oxford has been famous in these intellectual contests, but Dr Whewell, Lord Talbot de Malahide, Prof. Sedgwick, Mr Crawford, and Prof. Huxley have each found foemen worthy of their steel, and have made their charges and countercharges very much to their own satisfaction and the delight of their respective friends. The chief cause of contention has been the new theory of the Development of Species by Natural Selection – a theory open – like the Zoological Gardens (from a particular cage in which it draws so many laughable illustrations) to a good deal of personal quizzing, without, however, seriously crippling the usefulness of the physiological investigation on which it rests. The Bishop of Oxford came out strongly against a theory which holds it possible that man may be descended from an ape – in which protest he is sustained by Prof. Owen, Sir Benjamin Brodie, Dr Daubeny, and the most eminent naturalists assembled at Oxford. But others – conspicuous among them Prof. Huxley – have expressed their willingness to accept, for themselves as well as for their friends and enemies, all actual truths, even the last humiliating truth of a pedigree not registered in the Herald's College. The dispute has at least made Oxford uncommonly lively during the week.¹⁴

It was as a good as a good Union debate. We can sympathize with Huxley's reluctance to perform in such a setting, though not with his way of expressing himself. Two days earlier, 'Prof. Huxley, having been called on by the Chairman, deprecated any discussion on the general question of the truth of Mr Darwin's theory. He felt that a general audience, in which sentiment would unduly interfere with intellect, was not the public before which such a discussion should be carried on. Dr Daubeny had brought forth nothing new to demand or require remark.'¹⁵ Huxley was being rather rude. Later accounts of the Saturday session state that the audience was initially hostile to Huxley, and suggest it was due to clerical

¹⁴ *The Athenaeum*, p. 19, col. i.

¹⁵ *Ibid.*, p. 26, col. i.

partisanship. But some of those present may have been feeling unduly deprecated. Again, later accounts suggest that Huxley by his bearding of the bishop on the Saturday had secured at least a hearing for Darwinism.¹⁶ But this is the reverse of the truth: every one wanted to hear about Darwinism; Darwin himself could not be there on account of his health, and it was naturally to Huxley, as a leading protagonist on the Darwinian side, that people turned for a defence of Darwin's views. Before turning to Wilberforce, the chairman had invited Huxley to speak, only to be met with a sarcastic response.¹⁷ We can sympathize with the organizers, who finding Huxley in turn coy and belligerent, may well have wanted Wilberforce, who was something of an ornithologist¹⁸ and a Vice-President of the British Association, to put across some of the main points at issue. One of the complaints against Wilberforce was that he, no scientist himself, presumed to speak of scientific matters. It should be remembered that what was required on that occasion was not so much a first-hand knowledge of scientific enquiry as an ability to communicate with an audience larger than a full House of Commons. Huxley, too, although he did not see himself as a gladiator, did gladiate. His interventions were not always courteous¹⁹ or relevant.²⁰ And if Wilberforce was to be taken to task for being humorous, it is well to remember that Huxley, too, had tried his hand at humour.²¹

Five weeks earlier Wilberforce had written²² a review of Darwin's *Origin of species*, which was published in the July issue of *The Quarterly Review*.²³ His speech was a condensed version of the review.²⁴ Two passages of the review are of crucial importance, and show that Wilberforce, contrary to the central tenet of the legend, did not prejudge the issue. The main bulk of the review²⁵ is given over to an entirely scientific assessment of Darwin's Theory. We may not like his conclusions, he says at the outset,

But we are too loyal pupils of inductive philosophy to start back from any conclusion by reason of its strangeness. Newton's patient philosophy taught him

¹⁶ Especially *Huxley*, I, 179, quoted above, pp. 313 f., and I, 189, quoted below pp. 325 f.

¹⁷ *Tuckwell*, p. 51: 'Another pause, an appeal from the chairman to Huxley, his sarcastic response that he certainly held a brief for Science, but had not yet heard it assailed.'

¹⁸ The Reverend A. S. Farrar to Leonard Huxley, 12 July 1899, Huxley papers, Imperial College, London, 14; cf. J. W. Burgon, *Lives of twelve good men* (London, 1891), p. 277 for Wilberforce's interest in geology as well as ornithology.

¹⁹ *The Athenaeum*, p. 26, cols. i-ii.

²⁰ *Ibid.* p. 65, col. iii.

²¹ *Ibid.* p. 28, col. i.

²² *Wilberforce*, II, 450.

²³ *The Quarterly Review*, cviii, July 1860, 225-64; reprinted in Samuel Wilberforce, *Essays contributed to the Quarterly Review* (London, 1874), I, 52-103, and in part in R. Brimley Johnson (ed.), *Famous reviews* (London, 1914), pp. 267-87.

²⁴ *Hooker*, I, 526; *Tuckwell*, p. 51; but note that Henry Fawcett, *Macmillan's Magazine*, III, no. 14 (Dec. 1860), p. 88, quoted in n. 52 below, complained that no mention of the geological evidence was made. Much must have been left out.

²⁵ *The Quarterly Review*, pp. 225-56; Wilberforce, *Essays*, I, 52-92; Brimley Johnson, *Famous reviews*, pp. 267-79.

to find in the falling apple the law which governs the silent movements of the stars in their courses; and if Mr Darwin can with the same correctness of reasoning demonstrate to us our fungular descent, we shall dismiss our pride, and avow, with the characteristic humility of philosophy, our unsuspected cousinship with the mushrooms, –

‘Claim kindred there, and have our claim allowed’

– only we shall ask leave to scrutinise carefully every step of the argument which has such an ending, and demur if at any point of it we are invited to substitute unlimited hypothesis for patient observation, or the spasmodic fluttering flight of fancy for the severe conclusions to which logical accuracy of reasoning has led the way.²⁶

And he sums up his scientific criticisms with a warning against obscurantism that is as explicit as any one could want.

Our readers will not have failed to notice that we have objected to the views with which we are dealing solely on scientific grounds. We have done so from our fixed conviction that it is thus that the truth or falsehood of such arguments should be tried. We have no sympathy with those who object to any facts or alleged facts in nature, or to any inference logically deduced from them, because they believe them to contradict what it appears to them is taught by Revelation. We think that all such objections savour of a timidity which is really inconsistent with a firm and well-intrusted faith.²⁷

On the strength of the review it would be quite impossible to make out Wilberforce as the prelatial apostle of ecclesiastical authority trying to down the honest observations of simple science. In the speech he may have been less cautious; but we can be sure he made something of the same points. At the beginning of *The Athenaeum* report we read ‘The Bishop of Oxford stated that the Darwinian theory, when tried by the principles of inductive science, broke down. The facts brought forward did not warrant the theory.’ Wilberforce’s scientific criticisms are then reported, and finally: ‘Mr Darwin’s conclusions were an hypothesis, raised most unphilosophically to the dignity of a causal theory. He was glad to know that the greatest names in science were opposed to this theory, which he believed to be opposed to the interests of science and humanity.’²⁸ According to *Jackson’s Oxford Journal* he condemned the Darwinian theory as ‘unphilosophical; as founded, not on philosophical principles, but upon fancy, and he denied that one instance had been produced by Mr Darwin on the alleged change from one species to another had ever taken place [*sic*]. He alluded to the weight of authority that had been brought to bear against it – men of eminence, like Sir B. Brodie and Professor Owen, being opposed to it, and concluded, amid much cheering, by denouncing it as degrading to man, and as a theory

²⁶ *The Quarterly Review*, p. 231; Wilberforce, *Essays*, 1, 58–9; Brimley Johnson, *Famous reviews*, p. 270.

²⁷ *The Quarterly Review*, p. 256; Wilberforce, *Essays*, 1, p. 92; Brimley Johnson, *Famous reviews*, p. 279.

²⁸ *The Athenaeum*, p. 65, col. i.

founded upon fancy, instead of upon facts.²⁹ Wilberforce may not have told his audience in the Museum that it was, in principle, possible that Darwin's theory was true, in which case humanity would have to eat humble pie, but it is clear that he did not argue that Darwin's theory must be false because its implications for the nature of man were unacceptable. As he saw it, and as most of his audience saw it, he was showing that it was, as a matter of scientific fact false, and only having established this did he go on to say in effect 'and a good thing too'.

In assessing Wilberforce's argument, two crucial distinctions have to be borne in mind: first between the Darwinism that Darwin was propounding and what is understood as Darwinism today; and secondly between simple inductive generalization and an overall schema of explanation and interpretation. Evolution is not itself an immutable creed, but has itself evolved. The Neo-Darwinism that men of science now accept took its present form only in the 1940s and is at least three stages removed from the theory Darwin propounded. Darwin had no theory of genes and gave no account of how it was that species came into being: the very title of his book was itself a misnomer. What he was really arguing for was a hypothesis that each species had gradually developed from some simpler one, and the *Survival of the Fittest* as a partial explanation of how this had happened. Wilberforce claimed that the hypothesis was false and that the explanation failed to account for some crucial facts. In the review he devoted six pages³⁰ to the absence in the geological record of any case of one species developing into another. Darwin had felt this to be a difficulty, and had explained it away by reason of the extreme imperfection of the geological record. Subsequent discoveries were soon to vindicate Darwin, and to fill in the stages whereby many different species had evolved from common ancestors: but in 1860 it was fair to point out the gaps in the evidence, and to argue that Darwin had put forward only a conjectural hypothesis, not a well-established theory.

In the speech Wilberforce concentrated on the apparent fixity of species. Even Grandmother remembered his saying rock-pigeons were what rock-pigeons always had been. *The Athenaeum* is fuller. Between the sentences already quoted, its report runs:

The permanence of specific forms was a fact confirmed by all observation. The remains of animals, plants, and man found in those earliest records of the human race – the Egyptian catacombs, all spoke of their identity with existing forms, and of the irresistible tendency of organized beings to assume an unalterable character. The line between man and the lower animals was distinct: there was no tendency on the part of the lower animals to become the self-conscious intelligent being, man; or in man to degenerate and lose the high characteristics

²⁹ *Jackson's Oxford Journal*, Saturday 7 July, 1860, p. 2, col. 6.

³⁰ *The Quarterly Review*, pp. 239–45; Wilberforce, *Essays*, I, 70–7; Brimley Johnson, *Famous reviews*, p. 271. But see n. 24 above.

of his mind and intelligence. All experiments had failed to show any tendency in one animal to assume the form of the other. In the great case of the pigeons quoted by Mr Darwin, he admitted that no sooner were these animals set free than they returned to their primitive type. Everywhere sterility attended hybridism, as was seen in the closely-allied forms of the horse and the ass.

Wilberforce was making three points. First that over the course of human history there was no evidence of any new species developing; secondly that selective pressures, while admittedly having an effect, did not cause a change of *species*; and thirdly that the phenomenon of the sterility of hybrids told strongly in favour of the fixity of species. As regards the first point we now know that Wilberforce is wrong; but on the other two points he was right. Dogs, horses³¹ and pigeons have been selectively bred for thousands of generations, yet different breeds not only remain mutually fertile, but are liable to revert to type. Obvious changes in the phenotype are less significant than Darwin claimed, and species are genetically much more stable than he had supposed. Even if the family resemblances between different species were fully recognized, it still would not follow that they had evolved from one another. Although Mendeléeff was to discover in 1869 family resemblances between different elements, it was as much part of orthodox doctrine in chemistry in the late nineteenth century that the transmutation of elements was impossible as it became orthodox doctrine in biology the transmutation of species had, indeed, although by very gradual steps, taken place. Unless and until Darwinians could produce an explanation of how organisms of one species could eventually evolve into those of another, which also accounted for hybrid infertility and reversion to type, it was a fair criticism to say that Darwin had not offered a causal theory but only, at best, a hypothesis.³²

Darwin himself thought Wilberforce's criticisms fair or at least faceable. 'I have just read the "Quarterly"' he wrote to Hooker in July, 1860. 'It is uncommonly clever; it picks out with skill all the most conjectural parts, and brings forward well all the difficulties. It quizzes me quite splendidly by quoting the "Anti-Jacobin" against my Grandfather ...'³³ A letter to Lyell on 11 August is significant: '... This morning I recommenced work and am at dogs; ... By the way, the Bishop makes a very telling case against me, by accumulating several instances where I speak doubtfully; but this is very unfair, as in such cases as this of the dog, the evidence is and must be very doubtful.' Darwin's first work, on recovering his health, was in the areas picked out as weak spots of his theory by

³¹ See below, pp. 325 f.

³² I am indebted to Sir Alister Hardy for many valuable discussions on the true nature of speciation. See his *The living stream* (London, 1965), pp. 96-7.

³³ *Darwin*, II, 324-5.

Wilberforce.³⁴ At the same time he is beginning to be more critical of Wilberforce's criticisms, as being unreasonably stringent in view of the inevitably doubtful nature of the evidence. Huxley had made this point at the outset.

Prof. Huxley defended Mr Darwin's theory from the charge of its being merely an hypothesis. He said, it was an explanation of phenomena in Natural History, as the undulating theory was of the phenomena of light. No one objected to that theory because an undulation of light had never been arrested and measured. Darwin's theory was an explanation of facts; and his book was full of new facts, all bearing on his theory. Without asserting that every part of the theory had been confirmed, he maintained that it was the best explanation of the origin of species which had yet been offered.³⁵

It was, indeed, not a simple hypothesis about what had actually happened, but a schema of explanation and interpretation. Its immense appeal lay in its power of organizing the phenomena of natural history in a coherent and intelligible way. This was what had led Hooker to adopt it,³⁶ and subsequently commended it, in spite of admitted difficulties and deficiencies, to almost all working biologists.

It was, in modern parlance, a paradigm shift. This explains why each side fumbled in its attempts to invoke principles of the philosophy of science to determine how the argument should proceed, and why, in spite of appeals from Hooker, Henslow and many other leading biologists, that the question should be regarded dispassionately, Darwinism became at once a creed, to be espoused or eschewed with religious vehemence and enthusiasm. It was not just a Baconian hypothesis that could be accepted or rejected by a simple enumeration of instances independently of what was thought about other matters. Darwinism affected the whole of a biologist's thinking, his way of classifying, his way of explaining, what he thought he could take for granted, what he would regard as problems needing further attention. We may take Huxley's point that Darwin's theory was not merely an hypothesis but an explanation – but not from Huxley, the disciple and propounder of Hume.³⁷ According to Tuckwell, Huxley expressed the point thus: 'I am asked if I accept Mr Darwin's book as a complete causal hypothesis. Belated on a roadless common on a dark night, if a lantern were offered to me, should I refuse it because it shed an imperfect light? I think not – I think not.' Again, it is a fair point, that scientific theories should not be assessed against some abstract standard but should be weighed against the alternatives actually available, but not one that Huxley was in a position to make, Huxley who

³⁴ *Darwin*, II, 356; it was published in 1868 under the title *The variation of animals and plants under domestication* and contains besides a chapter on dogs, two chapters on pigeons.

³⁵ *The Athenaeum*, p. 65, col. i. Cf. *Huxley*, I, 193, and Henry Fawcett, *Macmillan's Magazine*, III, no. 14 (Dec. 1860), pp. 83-4.

³⁶ *The Athenaeum*, p. 65, col. ii.

³⁷ T. H. Huxley, *Hume* (London, 1879).

invented the word 'agnostic' and was for ever urging the obligation of intellectual integrity not to go beyond what could be conclusively proved by the evidence. Could not Kingsley have turned Huxley's own argument against him to urge on him that, in spite of the lack of absolute certainty in the matter, Huxley ought nevertheless to embrace Christianity as being the best lantern available to guide us through the darkness in which we find ourselves?

Paradigms are pervasive. Because they affect the whole way of thinking, they cannot be assessed by reference to only limited evidence and consideration. One of the charges against Wilberforce was that he considered the bearing of Darwin's theory on our understanding of man, and in spite of the explicit *caveats* I have quoted from his review, allowed his audience to be swayed by considerations not strictly scientific. But whereas such considerations are irrelevant to limited scientific laws, such as Baconian hypotheses, they cannot be ruled out *a priori* from being relevant to very general theories or paradigms. Just as evidence for Darwinism could be drawn from many fields, so can evidence against it. In recent years Jensen and Eysenk have been in hot water for their allegedly racist views about the genetic aspects of human intelligence. It is interesting to note that Wilberforce in his review had foreseen the potentially racist implications of Darwin's theories, and has a witty passage about colour prejudice of ants, who always have black ants as their slaves.³⁸ To put the argument briefly in the form of a dilemma: either Darwin's theory was a simple hypothesis, in which case difficulties about hybrids and reversion to type were fair and at the time well-nigh conclusive arguments against it: or it was a grand interpretative schema, in which case counterintuitive consequences about the nature and dignity of man were relevant and cogent.

Paradigms are not only pervasive, but appeal to authority. Whereas with a Baconian induction, any industrious observer can, in principle, examine instances and either corroborate or refute the hypothesis, a paradigm depends for its acceptance on its being found illuminating by those who are actually working in the field. This is what underlies two of the mutually incompatible charges laid against Wilberforce. It was complained (unfairly – see note 18 above) that Wilberforce did not have first-hand knowledge of biological research, but had been 'crammed' by Professor Owen, who had been staying at Cuddesdon the night before, and therefore was not in a position to venture an opinion on the merits of Darwin's theory. On the other hand, it was also complained that Wilberforce did not so much argue as appeal to authority. In the legend, of course, the appeal was to ecclesiastical authority: but clearly it was to scientific authority in the actual event. Both sides made the appeal, both

³⁸ *The Quarterly Review*, pp. 253–4; Wilberforce, *Essays*, 1, p. 89; Brimley Johnson, *Famous reviews*, p. 278.

over-played their hands.³⁹ Huxley had wanted throughout to reserve the whole question to professional scientists on the grounds that the interested laymen were incompetent to form a proper judgement. Wilberforce claimed that 'the greatest names in science' agreed with him,⁴⁰ whereupon first Lubbock and then Hooker expressed their disagreement. At the time this was held to be far more important than anything Huxley said.⁴¹ But although there were significant exceptions, it must be remembered that, as *The Athenaeum* correctly⁴² reports, 'The most eminent naturalists assembled at Oxford' were on Wilberforce's side.

All in all, Wilberforce's speech was well suited to the occasion. Although it did not find favour with the Darwinians, it not only succeeded in communicating to a large and fractious audience new and difficult ideas, but put forward serious arguments and made a number of telling points, which, according to Tuckwell and Hooker, Huxley did not succeed in meeting effectively.⁴³ Although he, like everybody else there, was confused on some of the finer points of scientific methodology, and although he exaggerated his case in some respects, and has turned out wrong in others, it was a creditable performance. And it was seen as such. He himself showed no signs of discomfiture on the occasion.⁴⁴ Even Grandmother admits that the majority of the audience were with the bishop as the end of the debate,⁴⁵ and the same point emerges from the account given by Sir M. Foster, and tacitly accepted by Huxley's biographer.⁴⁶ Certainly he was given the palm by *The Athenaeum*;⁴⁷ four years later Disraeli, not a profound thinker himself but an accurate barometer of the climate of current opinion, thought it tactful to allude to the interchange in Wilberforce's presence;⁴⁸ Wilberforce himself still thought well enough of the written version of his views to reprint it in

³⁹ Henry Fawcett, *Macmillan's*, III, no. 14 (Dec. 1860), p. 81, corrected by J. S. Henslow, III, no. 16 (Feb. 1861), p. 336.

⁴⁰ *The Athenaeum* says 'the greatest names in science', but reports Hooker as saying 'that the Bishop of Oxford having asserted that all men of science were hostile to Mr Darwin's hypothesis - whereas he himself was favourable to it - he could not presume to address the audience as a scientific authority'. It is unlikely that the reporter would have introduced the discrepancy - compare *Jackson's Oxford Journal* (quoted pages 318-19 above). It is more likely that Hooker misheard - one of the earliest steps in the making of the myth - or - quite pardonably in that context - misrepresented Wilberforce in order to introduce his own remarks with a pleasing mock modesty.

⁴¹ Lyell to Sir Charles Bunbury on Wednesday, 4 July [*Lyell*, p. 335]: 'I was not able to attend the section of Zoology and Botany (Henslow in the chair), when first Owen and Huxley, and on a later day the Bishop of Oxford and Huxley, had a spar, and on the latter occasion young Lubbock and Joseph Hooker declared their adhesion to Darwin's theory.'

⁴² See G. S. Carter, *A hundred years of evolution* (London, 1957), p. 70.

⁴³ *Tuckwell*, p. 52; *Hooker*, I, 526.

⁴⁴ *Tuckwell*, p. 52; nor did he later show any hostility to Huxley; see *Huxley*, I, 188.

⁴⁵ Letter to Leonard Huxley, quoted *Life of Huxley*, I, 188-9.

⁴⁶ Reported in *Life of Huxley*, I, 189.

⁴⁷ P. 19, col. i.

⁴⁸ W. F. Monypenny and G. E. Buckley, *Life of Disraeli* (London, 1910), IV, 374.

his *Essays contributed to the Quarterly Review* in 1874; and when, in 1881, his son was writing his biography, it was an incident he could recall with credit.⁴⁹

Nevertheless, this was not how it was seen by everyone. Wilberforce said something – something about apes and grandmothers – which led Huxley to say to Brodie ‘The Lord hath delivered him into my hands’ and which gave rise to the legend of his having been completely obliterated by Huxley. According to the legend itself, he turned to Huxley and asked: ‘Is it on your grandfather’s or grandmother’s side that you claim descent from the apes?’ whereupon Huxley retorted: ‘I would rather be descended from an ape than a bishop.’ It is good repartee, of the sort likely to be treasured by undergraduates, but it cannot have been what was actually said. In the first place, it is badly attested. The chief ear-witness who supports it, Grandmother of *Macmillan’s Magazine*,⁵⁰ was writing almost forty years after the event: the main contemporary report to this effect, Lyell’s letter to Bunbury on 4 July, was giving only a second-hand account,⁵¹ and saying that he had heard several different versions of the incident. More weight should be given to the account of Henry Fawcett, who wrote in the December number of *Macmillan’s Magazine*, but Wilberforce is reported in *oratio* very *obliqua*, and, as I shall argue, wrongly in respect of one crucial word.⁵² In the second place, it is too good, and does not account for the initial unease in the Darwinian camp. Although when Huxley wrote to Dyster on 9 September he believed he was the most popular man in Oxford for full four and twenty hours afterwards,⁵³ he was not so sure at Dr Daubeny’s that evening, when, according to Grandmother’s account, he had the look of one who feels the cost of victory, and said ‘once in a lifetime is enough, if not too much’.⁵⁴ In a letter to Huxley’s son, she was more explicit.

I gathered from Mr Huxley’s look when I spoke to him at Dr Daubeny’s that he was not quite satisfied to have been forced to take so personal a tone – it a

⁴⁹ *Wilberforce*, II, 450–1.

⁵⁰ Quoted above, pp. 313 f.

⁵¹ *Lyell*, II, 335. Green (L. Stephen, *Letters of J. R. Green*, pp. 44 f.) was a contemporary ear-witness, but his reliability is impugned by Farrar. See his letter to Huxley quoted pages 326–8 below.

⁵² *Macmillan’s Magazine*, III, 88. Since I shall, in effect, be disbelieving Fawcett’s testimony, it is only fair to quote him in full. ‘We were therefore not a little astonished, that in the discussions upon Mr Darwin at the British Association at Oxford geology was not even alluded to. It was sad, indeed, to think that the opponents of the theory sought to supply this omission by summoning to their aid a species of oratory which could deem it an argument to ask a professor if he should object to discover that he had been developed out of an ape. The professor aptly replied to his assailant by remarking, that man’s remote descent from an ape was not so degrading to his dignity as the employment of oratorical powers to misguide the multitude by throwing ridicule upon a scientific discussion. The retort was so justly deserved, and so inimitable in its manner, that no one who was present can ever forget the impression it made.’

⁵³ Huxley papers, 117 ff.; quoted below, p. 326; also in Cyril Bibby, *Scientist extraordinary*, p. 41.

⁵⁴ Quoted above, p. 314.

little jarred on his fine taste. But it was the Bishop who first struck the insolent note of personal attack.⁵⁵

But if the bishop had been as offensive as she made out, Huxley had nothing to regret, and could relax in the knowledge of having administered a well justified rebuke, and enjoy a well-earned victory. Yet three days later, on hearing the words 'South America' in a remark about butterflies, he started, quite irrelevantly in that context, to controvert something Wilberforce must have said about horses reverting to type there,⁵⁶ and maintained that it was only 'an assumption that the wild horses of the Pampas of America were identical in form with the original wild horse'.⁵⁷

Nor was Huxley the only one to be unsure whether his *riposte* to Wilberforce had been either called for or successful. Grandmother recalled

I never saw such a display of fierce party spirit, the looks of bitter hatred which the audience bestowed – (I mean the majority) on us who were on your father's side – as we passed through the crowd we felt that we were expected to say 'how abominably the Bishop was treated' – or to be considered outcasts and detestable.⁵⁸

She attributed it to party spirit. But Hooker, who had also controverted Wilberforce, incurred no ill will, and reported to Darwin: 'I have been congratulated and thanked by the blackest coats and whitest stocks in Oxford.'⁵⁹ Sir Charles Lyell reported a division of opinion about Huxley's performance, many blaming Huxley for his irreverent freedom, but others, including the vice-chancellor, thinking that the bishop got no more than he deserved.⁶⁰ But if the legend were correct, there could have been no question of blaming Huxley. If I ask you whether you are descended from an ape, you are perfectly entitled to say you would rather be descended from an ape than a man like me. Huxley must have gone much further than the bishop for there to have been room for the difference of opinion reported by Lyell. A few of his friends suspected that he harmed his own cause by this kind of controversy.⁶¹ Even Darwin was writing three weeks later to urge him to do less 'volunteer-soldiering' in order to concentrate on original research, and may have been moved in part by doubts as to the effectiveness of Huxley's polemics.⁶² And although Huxley's biography records it as a success, its concluding judgement is significantly qualified.

⁵⁵ *Huxley*, 1, 188.

⁵⁶ Cf. his review in *The Quarterly*, pp. 325–6; Wilberforce, *Essays*, 1, 64–5.

⁵⁷ *The Athenaeum*, no. 1707, 14 July 1860, p. 65, col. iii.

⁵⁸ *Huxley*, 1, 189.

⁵⁹ *Hooker*, 1, 527.

⁶⁰ *Lyell*, II, 335.

⁶¹ Owen Chadwick, *The Victorian Church*, 1, 11; see, for example, Rolleston to Huxley, Huxley papers, 151 ff.

⁶² Francis Darwin and A. C. Seward, *More letters of Charles Darwin* (London, 1903), 1, 157–8.

The importance of the Oxford meeting lay in the open resistance that was made to authority, at a moment when even a drawn battle was hardly less effectual than acknowledged victory. Instead of being crushed under ridicule, the new theories secured a hearing, all the wider, indeed, for the startling nature of their defence.⁶³

The defence was startling; and only resulted in a drawn battle. The *riposte* therefore cannot have been called for, nor have been entirely successful, and the legend, which awards all the blame to Wilberforce and a devastating success to Huxley, cannot be correct.

Huxley himself was at pains to disclaim the words 'I would rather be descended from an ape than a bishop', and when these were attributed to him in the second volume of Wilberforce's *Life*, a correction was sent in and appears among the *Errata* in the third volume. It reads 'If I had to choose between being descended from an ape or from a man who would use his great powers of rhetoric to crush an argument, I should prefer the former.' A fuller account from Huxley is given in his letter to Dyster on 9 September 1860. He wrote

Samuel thought it was a fine opportunity for chaffing a savan [*sic*] – However he performed the operation vulgarly and I determined to punish him – partly on that account and partly because he talked pretentious nonsense. So when I got up I spoke pretty much to the effect – that I had listened with great attention to the Lord Bishops speech but had been unable to discover either a new fact or a new argument in it – except indeed the question raised as to my personal predilections in the matter of ancestry – That it would not have occurred to me to bring forward such a topic as that for discussion myself, but that I was quite ready to met the Right Revd. prelate even on that ground – If then, said I, the question is put to me would I rather have a miserable ape for a grandfather or a man highly endowed by nature and possessed of great means of influence and yet who employs those faculties and that influence for the mere purpose of introducing ridicule into a grave scientific discussion – I unhesitatingly affirm my preference for the ape. Whereupon there was inextinguishable laughter among the people – and they listened to the rest of my argument with the greatest attention... I believe I was the most popular man in Oxford for full four and twenty hours afterwards.

'If then, said I, the question is put to me ...;' but was it? It seems fairly clear that it was not. The decisive evidence is that of Canon Farrar, who wrote to Huxley's son, carefully correcting Grandmother's and J. R. Green's version of what the bishop actually said. Farrar was no enemy of Huxley, and a few years later organized a meeting for Huxley to expound Darwinism to clergymen.⁶⁴ His account, although written long after the event, is well considered, and deserves credence.

... His [Wilberforce's] words are quite misquoted by you (which your father refuted). They did not appear vulgar, nor insolent nor personal, but flippant.

⁶³ *Huxley*, 1, 189.

⁶⁴ *Huxley*, 1, 302 n.

He had been talking of the perpetuity of species in birds: and then denying *a fortiori* the derivation of the species Man from Ape, he rhetorically invoked the help of *feeling*: and said (I swear to the *sense* and the *form* of the sentence, if not to the words) 'If anyone were to be willing to trace his descent through an ape as his *grandfather*, would he be willing to trace his descent similarly on the side of his *grandmother*.' It was (you see) the arousing the antipathy about degrading *women* to the Quadrumana. It was not to the point, but it was the purpose. It did not sound insolent, but unscientific and unworthy of the zoological argument which he had been sustaining. It was a βάθος.

Your father's reply, (Remember, he did not use the word '*prostituting* his abilities', but (I believe) '*degrading*'. But I will swear to the absence of the former low word. (Also *equivocal* was not used).), showed that there was a vulgarity as well as a folly in the Bishop's words; and the impression distinctly was, that the Bishop's party as they left the room, felt abashed; and recognised that the Bishop had forgotten to behave like a gentleman. The victory of your father, was not the ironical dexterity shown by him, but the fact that he had got a victory in respect of *manners* and *good breeding*. You must remember that the whole audience was made up of gentlefolk, who were not prepared to endorse anything vulgar. The speech which really left its mark *scientifically* on the meeting, was the short one of *Hooker*, wherein he said 'he considered that Darwin's views were true in the field of Botany; and that he must claim that students should "provisionally accept them as a *working hypothesis* in the field of the Animal Kingdom"'. I am confident, in the above statements, not only that I have given the true impression, but I can corroborate my quotations of the words used by the exact memory of the late Canon T. S. Evans of Durham, who about twelve years ago, talked over with me, the details of the meeting....

The blank look of Sir B. Brodie to your father's remark, corroborates my view that the insolence and personality of Bishop Wilberforce's remark was not caught by the meeting, until your father remarked it.

The spiteful narrative which you quote from J. R. Green (the *historical* writer) is hardly worthy of him! I should say that to fair minds, the *intellectual* impression left by the discussion was that the Bishop had stated some facts about the perpetuity of Species, but that no one had really contributed any valuable point to the opposite side except Hooker; but that your father had scored a victory over Bishop Wilberforce in the question of good *manners*.⁶⁵

If this account is accepted, Wilberforce never turned to Huxley and asked him about his, Huxley's, ancestry, but rather spoke about his own, Wilberforce's, descent, either in the first person singular or possibly in the first person plural or third person impersonal. This accords with the account given in his biography,⁶⁶ and would fit with what he had said in the review 'and if Mr Darwin can with the same correctness of

⁶⁵ Farrar to Leonard Huxley, 12 July 1899, Huxley papers, 13 ff.; quoted in part *Huxley*, I, 182-3 n.

⁶⁶ *Wilberforce*, II, 451. 'In the course of this speech which made a great impression, the bishop said that whatever certain people might believe, *he* would not look at the monkeys in the zoo as connected with *his* ancestors.' (My italics.)

reasoning demonstrate to us our fungular descent, we shall dismiss our pride, and avow, with the characteristic humility of philosophy, *our unsuspected cousinship with the mushrooms*, with mushrooms being replaced by apes, in consequence of Huxley's dispute with Owen two days earlier. Wilberforce did, however, ask some question of Huxley, intended to reveal a *reductio ad absurdum* of the claim that evolution had taken place over many generations.⁶⁷ Once we have established the fixity of species, as Wilberforce thought he had, then the principle that the progeny are of the same species as the parents becomes a strict logical equivalence relation, and any putative chain of descent from one species to another must have a broken link somewhere. It is quite fair to put this in the form of a challenge, and to ask Huxley where he would have us locate the break, pointing out the absurdity of supposing either our near ancestors non-human or our remote ancestors human, the former horn of the dilemma being as the grandfather that Green and Vernon Harcourt remembered, the latter the ancestors that Tuckwell remembered and Lyell had heard about. Tuckwell remembered him as 'expressing the "disquietude" he should feel were a "venerable ape" be shown to him as his ancestress in the Zoo'. According to Tuckwell he had plagiarized this from a mountebank sermon by Burgon.⁶⁸ Perhaps what Tuckwell thought him to have plagiarized was the gender of his progenitor, the lapse of taste that had offended Farrar. Certainly, there is no need to suppose that the reference to the apes was due to Burgon. The *quadrumana* had been the focus of dispute two days earlier, and Huxley's views had been made both then and much earlier. It would be entirely natural for Wilberforce to raise the question in these terms, and ask Huxley where he stood on it: and it would be entirely natural for Huxley to take this as a personal attack on himself – three months earlier, in the April issue of the *Westminster Review*, he had accused the critics of Darwin of making him out to be no better than an ape himself,⁶⁹ and since the bishop was now criticizing him for being a Darwinian, he must be calling him an ape too.

Canon Farrar reckoned Wilberforce went wrong in invoking the aid of feeling and in particular the feeling his audience had about the special status of women. The latter may have struck a false note to Canon Farrar's ears, but some of those present – Green and Vernon Harcourt, for example – missed the gender of the grandparent, and to my twentieth-century unchivalrous mind it seems a very minor point, and I find it difficult to believe that hearing this could have led Huxley to exclaim that the Lord had given over Wilberforce into his hands. Rather,

⁶⁷ Vernon Harcourt to Leonard Huxley, quoted *Huxley*, 1, 185. According to *The Athenaeum* (p. 65, col. i), Huxley met the challenge by pointing out that each individual had been 'once a monad'.

⁶⁸ *Tuckwell*, pp. 51–52.

⁶⁹ *Westminster Review* [vol. LXXIII, no. CXLIV] – New Series, vol. XVII, no. II, p. 541; quoted in Cyril Bibby, *Scientist extraordinary*, pp. 39–40.

it was that behind Wilberforce's *ad feminam* appeal lay an implicit use of the genetic fallacy – the assumption that the steps whereby a doctrine or institution has developed determines its intellectual or social validity. Wilberforce had said, according to Green,⁷⁰ that 'he had been told that Professor Huxley had said that he didn't see that it mattered much to a man whether his grandfather was an ape or not...': Huxley had had occasion, two days earlier at the conclusion of his speech against Owen, to claim that the worth of a man depended on what he is, and not who his ancestors were; and thus was all set to put the question to himself about his own predilections in human handsomeness and his own preferences in choice of ancestry.⁷¹ The other points Wilberforce had made – the pigeons, the horses in South America, the short-legged sheep of America – could not be convincingly refuted, but here was something on which Huxley felt entirely confident. He would argue with complete conviction that the dignity of man depended not on his descent but on his doings, and on that issue win to his own complete satisfaction.

Huxley's view prevailed. It was partly that Darwinism won. Many of the difficulties urged against evolution in 1860 by Owen and others, though not those actually put forward by Wilberforce in his speech, were satisfactorily settled in the next few years. The geological record filled in many missing links. Satisfactory explanations of how electric eels or venomous snakes could have evolved were found. It became a good inductive hypothesis, as Wilberforce had all along allowed that it might. The Darwinians, who were a small minority in 1860, became the dominant majority over the next twenty years, but never lost the sense of being persecuted. This was partly a matter of Huxley's own personality. He had no love of ecclesiastics and was sure that science must be at odds with religion. Later in his life he is still remarkably resistant to the idea that there were clergymen who accepted evolution, even when actually faced with them.⁷² The fact that there were others who did not, including some like the archdeacon of Exeter at a later meeting of the British Association,⁷³ fortified him in his prejudice that they were all obscurantist at heart. The quarrel between religion and science came about not because of what Wilberforce said, but because it was what Huxley wanted; and as Darwin's theory gained supporters, they took over his view of the incident.

Huxley's arguments and antipathies were congenial to many of his contemporaries. The irrelevance of descent to moral worth struck chords in the mid-Victorian middle-class, still anxiously asserting its political and

⁷⁰ L. Stephen, *Letters of J. R. Green*, pp. 44 f.

⁷¹ *The Athenaeum* (p. 19, col. i), although not conclusive, supports this view. 'But others – conspicuous among them Professor Huxley – have expressed their willingness to accept, for themselves as well as for their friends and enemies, all actual truths, even the last humiliating truth of a pedigree not registered in the Herald's College.'

⁷² *Huxley*, I, 302 n.; see also T. H. Huxley, *Collected essays* (London, 1893), III, 119.

⁷³ Owen Chadwick, *History of the Victorian Church*, II, 25, 27.

social standing in the face of the aristocracy at a time when the Second Reform Bill was yet unpassed. Huxley bearded a bishop, and bishops incurred the same unthinking hostility then as vice-chancellors do now. Wilberforce, in particular, was unpopular in the university, and many dons were predisposed to think ill of him, and cast his assailant in a heroic mould.⁷⁴ Huxley's description was particularly significant. Although many of the complaints against Wilberforce are unsubstantiated and inconsistent with one another, two things are indubitable: he was eloquent, and he was funny. Hooker complained about the eloquence, Huxley about the humour. And from that time forward scientists have obediently practised a form of expression in their communications with the learned world that could never lay them open to either charge. It was a change of style. The British Association had been founded with a largely amateur and unprofessional public in mind. Science, in the first half of the nineteenth century as in previous centuries, was part of the intellectual culture of mankind, into which all might enter and from which all might profit. But from 1860 onwards it becomes more of a closed shop, with its own puritan ethic, from which amateurs are more and more excluded. Wilberforce was 'a man of restless and versatile intellect, who not content with an [un]equivocal success in his own sphere of activity, plunged into scientific questions with which he had no real acquaintance',⁷⁵ and this was no longer to be tolerated, just as in our own century Literary Criticism has become a speciality in which non-professionals are disfranchised from the right to express an opinion. The men of science who attended the British Association in 1860 and were hearing a paper from Professor Draper, M.D., of New York 'On the Intellectual Development of Europe' were to give way to the academics we know, for many of whom it is a point of professional pride to know nothing outside their own special subject.

This is the most important reason why the legend grew. At the time, Wilberforce was perfectly entitled to have an opinion about science, but in the later years of the century scientists were increasingly jealous of their autonomy, and would see in Huxley's retort a claim they were increasingly anxious to assert. They identified with Huxley, and since they were successful, he must have succeeded on that occasion too – Tuckwell's account of the incident comes in his chapter on the rise of 'Scientific Science'. In itself entirely unimportant, one of the many skirmishes which took place in Oxford during the field days organized by the British Association, the incident grew to be the one thing that most people now have heard about either Wilberforce or Huxley. About what actually happened in Oxford on 30 June 1860 it tells us very little: but about currents of thought in the latter part of the last century it tells us a lot.

⁷⁴ Cf. J. R. Searle, *The campus war* (Pelican, 1972), p. 99, for modern, secular analogues.

⁷⁵ L. Stephen, *Letters of J. R. Green*, p. 45.