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C. P. SNOW

THE TWO CULTURES

with Introduction by

STEFAN COLLINI

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INTRODUCTION

At a few minutes past five o'clock in the afternoon of 7 May 1959, a bulky, shambling figure approached the lectern at the western end of the Senate House in Cambridge. In the body of the ornately plastered neo-classical building sat a large gathering of dons and students, together with a number of distinguished guests, who had assembled for one of Cambridge's show-piece public occasions, the annual Rede lecture. The figure who was about to address them was C.P. Snow (then more formally styled Sir Charles, soon to be Lord Snow, but known throughout the world by his initials). Snow had been a research scientist; he had high-level administrative experience in the Civil Service and in private industry; he was a successful novelist and prominent reviewer; and he had now achieved the indefinable status of a 'public figure', licensed to announce his opinions on all manner of topics. By the time he sat down over an hour later, Snow had done at least three things: he had launched a phrase, perhaps even a concept, on an unstoppably successful international career; he had formulated a question (or, as it turned out, several questions) which any reflective observer of modern societies needs to address; and he had started a controversy which was to be remarkable for its scope, its duration, and, at least at times, its intensity.

The title of Snow's lecture was 'The Two Cultures and the Scientific Revolution'. The 'two cultures' he identified were those of 'the literary intellectuals' (as he

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called them) and of the natural scientists, between whom he claimed to find a profound mutual suspicion and incomprehension, which in turn had damaging consequences for the prospects of applying technology to the alleviation of the world's problems. But in broaching this topic to his Cambridge audience, Snow was thrusting into the spotlight of public discussion themes which found an echo across the globe and which have continued to preoccupy and provoke. For in effect Snow was doing more than asking what the relation should be between the two cultures he believed he had identified, and doing more even than asking how the curricula of schools and universities should be arranged to give people an adequate education in both branches of knowledge. Beyond those pressing and consequential questions, he was asking what Britain's place was to be among the leading countries of the world; he was asking how (not whether but how) the rich countries should help the poor; he was asking how the planet was to be fed and what hopes for mankind the future held. Whatever reservations we may now have about the adequacy of Snow's original formulations, it is impossible to feel that the confusing and distressing period of history that divides us from the apparently more confident world of 1959 has rendered these questions any less urgent or any more tractable.

The large topics raised by Snow are not the exclusive property of any one discipline; indeed, they legitimately claim the attention of any educated citizen, and should not be confined to a set of academic pigeon-holes. Obviously, they are continuous with the *kinds* of topic which are habitually considered by philosophers, historians, and sociologists; how far they should also be considered part of the primary professional activity of

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physicists, chemists, and biologists has precisely been one of the matters at stake in the subsequent debate. For these reasons, it ought to be clear that to address the origins and significance of the idea of the 'two cultures' from the perspective of the cultural historian is not to assert some sort of superiority of the humanities over the sciences, still less is it any slighting of the immense importance of science or a high-handed dismissal of the perspective of the working scientist. However, Snow and his ideas are beginning to encounter a fate which is common among episodes of recent intellectual history: they fall into a murky limbo, no longer accurately recalled as part of living contemporary culture but not yet beginning to benefit from patient historical reconstruction. Before trying to identify what force and relevance Snow's questions still possess, therefore, it may be helpful to accelerate his release from this limbo by considering his work and its impact historically. But, first, a brief glance at the pre-history of this debate may help to set the topic in a longer perspective.

The 'two cultures' in historical perspective

As a cultural anxiety, concern about the divide between the 'two cultures' essentially dates from the nineteenth century, and the modern form of this anxiety would have been barely intelligible in earlier periods. Certainly, there have been, from the Greek dawn of Western thought onwards, distinct domains of human knowledge, and at different times reflective minds have pondered the dangers involved when one branch or 'discipline' of enquiry comes to be either threateningly dominant or inaccessibly recondite. But throughout the Middle Ages and Renaissance the interpretation of

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nature was generally regarded as but one element in the all-embracing enterprise of 'philosophy'. Only in the seventeenth century, in the course of what historians were much later to dub 'the scientific revolution', did achievements in the study of the natural world come to be widely regarded as setting new standards for what could count as genuine knowledge, and thereafter the methods employed by the 'natural philosophers' (as they were still termed) enjoyed a special cultural authority. The recurrence during the eighteenth-century Enlightenment of the aspiration to be 'the Newton of the moral sciences' testifies to the prestige not just of celestial mechanics, but of 'the experimental method' more generally. But that phrase also indicates that the study of human affairs could be seen as on a continuum with understanding the natural world, and the cultural map provided by the Enlightenment's great intellectual monument, *L'Encyclopédie*, did not represent human knowledge as structured around a division corresponding to the later divide between 'the sciences' and 'the humanities'.

It is from the Romantic period, at the end of the eighteenth and beginning of the nineteenth centuries, that one can date the beginning of an anxiety that some such fissure in types of knowledge might be opening up in a way which damaged both individual cultivation and social well-being. But even at this point, the threat was still not necessarily to be identified as an incapacity to communicate across a divide separating students of the human and of the natural worlds. It is true that William Blake, among others, memorably excoriated Newton and his legacy, but the Romantic champions of the imagination were as likely to contrast the fulness of creative or emotional energy released by poetry with the

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impoverished conception of human life underlying the 'dismal science' of political economy as to draw the line between the study of the human and the natural world. Insofar as a more general cultural worry was expressed, it was that calculation and measurement generally might be displacing cultivation and compassion, and of course in many quarters the over-riding issue was rather the presumed threat which secular knowledge of all kinds posed to religious belief and practical piety.[1]

Intellectual activity, including the meta-activity of reflection on the forms of knowledge, is, of course, shaped by different national traditions and anchored in a range of social practices. One can trace a specifically British genealogy for the 'two cultures' anxiety, arising out of a distinctive development of the social institutions within which education and research were carried on. This distinctiveness was reflected in the linguistic peculiarity by which the term 'science' came to be used in a narrowed sense to refer just to the 'physical' or 'natural' sciences. This appears to have become common in English only in the middle of the nineteenth century. The compilers of the *Oxford English Dictionary*, setting to work in the late-nineteenth century, recognised that this was a relatively recent development; the dictionary gives no example of this sense before the 1860s, and it is revealing that its first illustrative quotation implicitly points to the way English usage had started to diverge from other European languages: 'We shall . . . use the word "science" in the sense which Englishmen so commonly give to it; as expressing

[1] For a brief overview of this pre-history see Wolf Lepenies, *Between Literature and Science: The Rise of Sociology* ((1985) Eng. trans., Cambridge, 1988), 'Introduction'. The original German title, *Die Drei Kulturen*, makes the link to Snow's thesis explicit.

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physical and experimental science, to the exclusion of theological and metaphysical.'[2] Similarly, the coinage 'scientist' and its restriction to those practising the natural sciences is no older than the 1830s and 1840s. Credit for securely establishing the term is usually given to the philosopher and historian of science William Whewell, who used it in his *The Philosophy of the Inductive Sciences* of 1840. But the term first appeared in an article of 1834 reporting on how the lack of a single term to describe 'students of the knowledge of the material world' had bothered meetings of the British Association for the Advancement of Science in the early 1830s, at one of which 'some ingenious gentleman proposed that, by analogy with *artist*, they might form *scientist*', though the same report records that 'this was not generally palatable'.[3] Its subsequent currency reflected the growth of a self-conscious sense of professional identity among those who studied the natural world, an essential social precondition for later concerns about the divide between rival 'cultures'.

But the key social activity which posed with a pressing urgency the problem of the relation of the increasingly separate 'sciences' to the rest of culture was, of course, education. This was true in all the major European states, as national systems of education were put into place in the course of the nineteenth century, but again it took an especially acute form in England

[2] The quotation is from W.G. Ward in *The Dublin Review* (1867); see *OED*, 'science', sense 5. The *Supplement* to the dictionary, published in 1987, simply says 'this is now the dominant sense in ordinary use'.

[3] [William Whewell], '*The Connection of the Sciences* by Mrs Somerville', *Quarterly Review*, 101 (1834), 59. For the suggestion that the 'ingenious gentleman' was Whewell himself, see Sydney Ross, 'Scientist: the Story of a Word', *Annals of Science*, 18 (1962), 65–85.

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(Scotland retained a broader as well as more democratic pattern of education). For social at least as much as for intellectual reasons, a classical education at public school, followed by a sojourn at Oxford or Cambridge, remained the most prestigious educational route well into the twentieth century (though mathematics had long been held to be on a par with classics as a form of mental exercise). The teaching of science did gradually infiltrate these elite institutions – the establishment of a course in the natural sciences at Cambridge in 1850 was a significant landmark, and the endowment by the Duke of Devonshire in 1870 of the Cavendish Laboratory there was another. But in some quarters it continued to be stigmatised as a vocational and slightly grubby activity, not altogether suitable for the proper education of a gentleman. Indeed, at all levels science had to struggle to gain anything like parity in the curriculum, and the applied sciences in particular continued (and perhaps still continue) to be regarded as inferior activities in both the educational and industrial worlds.[4] By a nice irony, the canonical confrontation between the champions of scientific and literary education in the nineteenth century, which partly anticipated the debate between Snow and his chief adversary from the ranks of the literary critics, F.R. Leavis, also involved a Rede lecture at Cambridge.

In the late-nineteenth century, science had no more redoubtable and out-spoken champion than T.H. Huxley, a distinguished naturalist and comparative anatomist who had been Professor at the Royal School of Mines and who played a leading part in founding the

[4] Eric Ashby, *Technology and the Academics: An Essay on Technology and the Universities* (London, 1958), esp. chs. 2 and 3. Snow cites this work approvingly at p. 23 below.

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scientific teaching institution which was to become Imperial College, London. Invited to give the address to mark the opening in 1880 of Mason College, an institution founded in Birmingham in the heart of industrial England explicitly to provide a scientific education for those intending to pursue careers in manufacturing and commerce, Huxley issued a challenge to the defenders of the traditional classical education. Science, he affirmed, formed part of culture and offered a rigorous mental training, as well as making an indispensable contribution to national well-being. In tones that were to become familiar in the subsequent century, he denounced the resistance to the claims of scientific education by the defenders of the traditional classical curriculum as, therefore, both unjustified and short-sighted.[5]

Huxley's lecture contained a friendly allusion to the way in which the defenders of classical education drew comfort from the writings of 'our chief apostle of culture', that is, of Matthew Arnold. By this date, Arnold was the leading man of letters in Victorian England, but his working life had been spent as an Inspector of Schools, so he was regarded as speaking with a double authority on questions of education. When he came to deliver the Rede lecture for 1882 in the same Senate House that was later to be the setting for Snow, Arnold proposed as his theme 'Literature and Science', and he explicitly took up the challenge of Huxley's address. His tactic was essentially to re-define terms until the sharp contrast that Huxley had drawn between a literary and a scientific education all but disappeared. He insisted that the category of 'literature'

[5] T.H. Huxley, 'Science and Culture' (1880), repr. in his *Science and Education: Essays* (London, 1893), pp. 134–59.

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should embrace not mere *belles-lettres* but all great classics including Newton's *Principia* and Darwin's *The Origin of Species*. Similarly, he argued that Huxley was confining 'science' to the narrow English sense; the study of languages and of history could be part of systematic knowledge or *Wissenschaft*. Arnold thus made it easy for himself to conclude eirenically that literature and science were not so wholly dissimilar to one another, and that both deserved a place in a rounded education. But beneath this show of agreeableness, Arnold was in fact unyielding in resisting Huxley's attempted promotion of scientific and demotion of classical education. Above all, he insisted that a training in the natural sciences might produce a practically valuable specialist, but it could not turn out an 'educated' man: for this, literature, especially the literatures of antiquity, remained indispensable.[6]

This exchange not only pre-figured the later clash between Snow and Leavis, but it also symbolised the ways in which social and institutional snobberies clustered around this topic. Although the two men themselves were good friends, they represented different worlds. Huxley's own social origins were relatively modest; he taught at a non-university vocational institution; he had been speaking at the opening of a commerce-directed college; and despite his great personal triumphs in the arena of High Victorian culture, he still represented a voice from outside the traditional centres of privilege and power. Arnold, by contrast, the son of Rugby's most famous headmaster, moved easily among the classical and European literatures, and wrote

[6] Matthew Arnold, 'Literature and Science' (1882), repr. in R.H. Super (ed.), *The Complete Prose Works of Matthew Arnold*, vol. x (Ann Arbor, 1974), pp. 52–73.

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in a patrician literary style; he had come to be regarded as the incarnation of the Oxford whose charms he had memorably celebrated while Professor of Poetry there. Not for the last time in British cultural history, questions about the proper place of the sciences and the humanities in the nation's educational system appeared to be inextricably entangled with elusive but highly-charged matters of institutional status and social class. Arguably, the persistence of these social attitudes was to shape both Snow's later analysis and the response to it within Britain.[7]

Although the structure of education has changed considerably since Huxley and Arnold had their (notably amicable) exchange, the problem of academic specialisation and its consequences has continued to take a distinctive, and perhaps particularly acute, form in England. Both the final stages of school education and all of undergraduate university education have been more specialised there than in any comparable country. At the time of Snow's lecture, this pattern had assumed an extreme form: it was common for academically gifted children to start concentrating wholly upon science subjects or humanities subjects from as early as fourteen years old, to study only three of these subjects between sixteen and eighteen, and then to concentrate exclusively upon one while at university. In recent decades, some attempts have been made to allow a broader or more mixed choice of subjects at both school and university, but the situation in England still contrasts strikingly not only with the pattern in the United States, but also with those in other European countries, where a different inheritance of cultural attitudes as well

[7] See the historical survey in Hilary Rose and Steven Rose, *Science in Society* (London, 1969).

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as of educational arrangements has given a distinctive inflection to the 'two cultures' theme. In France, for example, there has grown up an intimate connection between some of the leading scientific 'grandes écoles' and recruitment to the higher reaches of national administration and public life: many senior civil servants as well as financiers and industrialists are graduates of the immensely prestigious Ecole Polytechnique with qualifications in engineering. At a different level, the high reputation of the Technische Hochschule in Germany gives a vocationally oriented scientific education a greater social standing than it has ever had in Britain, and has helped to form a cadre of managers in industry and commerce who have impressive technical qualifications. The resonance of the 'two cultures' theme in these countries has inevitably been modified by these differing cultural traditions. But although the issue has come to acquire a certain autonomous existence, the form in which we now encounter it still bears the marks both of Snow's own concerns and of the controversies in which it immediately became embroiled, and it may be helpful to re-consider these historical circumstances in a little more detail.

Snow's life

Charles Percy Snow, the second of the four sons of William Edward Snow and Ada Sophia *née* Robinson, was born on 15 October 1905 in Leicester in the heart of the English midlands.[8] The family history of the male Snows encapsulated the main stages of the development of modern industrial England. The great-grandfather,

[8] The fullest source of biographical information is Philip Snow, *Stranger and Brother: A Portrait of C.P. Snow* (London, 1982).

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John Snow, had been born in rural Devon in 1801, and though reportedly illiterate all his life, migrated as part of the first Industrial Revolution to the Birmingham area where he became an engine fitter. The grandfather, William Henry Snow, was a characteristic Victorian figure, a radical and nonconformist who educated himself and became foreman engineer of the Leicester tramways, supervising the replacement of horse-drawn by electric trams. He lived until 1916, incarnating for his elder grandsons the self-help and stern virtue of an heroic age (Charles was to refer to him with admiration several times in his writing and lectures). The father, William Edward Snow, had strong musical leanings: he was the organist at his parish church, and became an Associate and eventually a Fellow of the Royal College or Organists, a fact of which he was immensely proud. But music could not earn him a living; for that he worked as a clerk in a shoe factory in Leicester. In the delicate gradations of English class identities, the Snow family hovered just on the right side of that crucial divide between the would-be genteel lower-middle class and the barely respectable upper-working class. Financially, their situation was straitened and precarious, little different from that of the families of the bricklayers, warehousemen, and foremen stokers who occupied the surrounding, slightly inferior, terraced houses. But the Snows' house was semi-detached, the father gave piano lessons in the back parlour, and the sons were sent to a small private school rather than to the local Board school. Snow was to be intensely conscious of matters of social class throughout his life, a preoccupation and set of responses which were to leave their mark on his writing.

Charles Snow (know to his family as Percy until his

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marriage in 1950 to the novelist Pamela Hansford Johnson) followed the classic route of the clever, bookish boy without social advantages: the local public library was a lifeline to a wider imaginative world, and from the age of eleven his intellectual, cultural, and sporting aspirations were encouraged at Alderman Newton's School in Leicester, a modest local grammar school founded in the eighteenth century. Alderman Newtons' was far from outstanding academically: in Snow's time nobody had managed to get to university directly from the school. Its strength was in science rather than in the traditionally more prestigious classics and humanities, and this was the area on which Snow concentrated. Although he distinguished himself, there were still gaps in the educational ladder up which he was climbing: despite successfully completing his Intermediate Examination in Science in 1923, he had to wait two years before he could begin to study for his degree, during which period he earned a pittance working as laboratory assistant at the school and feeding his mind with a wide range of reading, especially in the nineteenth-century European novel. In 1925 he became a student in the newly established Chemistry and Physics department of nearby Leicester University College, one of those small provincial centres of higher education which at the time were only allowed to award external London University degrees. Snow obtained a First in Chemistry in 1927 and an M.Sc. in 1928. He was an intensely ambitious young man who had worked so hard during his final year as to push himself to the verge of a physical breakdown. But he achieved the success he needed to make the decisive step into the wider world, winning scholarships which allowed him to enter Christ's College, Cambridge as a Ph.D. student in October 1928.

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Snow began research in the field of infra-red spectroscopy in the by then world-famous Cavendish Laboratory headed by Lord Rutherford. His research prospered, and in 1930, at the age of twenty-five, he was elected a Fellow of Christ's College, a position he retained until 1945. At first, he seemed marked out for a successful career as a research scientist, but in 1932 he suffered a setback which re-directed his life. He and a colleague believed they had discovered how to produce Vitamin A by artificial methods. The discovery promised to be of immense theoretical and practical importance, and, following the announcement in *Nature*, the President of the Royal Society confirmed to the national press the significance of the findings. But alas, their calculations had been faulty, their 'discovery' had to be recanted amid considerable publicity, and, as his brother later put it, 'the trauma after all that publicity put Charles off scientific research irrevocably'.[9] That Snow was a trained scientist was crucial to the authority with which he was later to treat the question of the 'two cultures', but, as those scientists uneasy with this self-appointed champion of the scientific culture were to remark, his credentials were in fact somewhat shaky. By the time he came to give his Rede lecture, it was more than twenty years since he had been engaged in first-hand scientific research, and his achievement as a scientists had been patchy at best.

Two developments helped snow to carve out an alternative career for himself. In 1932 he published *Death Under Sail*, a detective story, followed two years later by *The Search*, a novel about a young scientist. These early efforts had been favourably reviewed, encouraging him to think of himself as a serious writer,

[9] Snow, *Stranger and Brother*, p. 35.

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and at the beginning of 1935 he had the idea for a series of linked novels which were to become the eleven volumes of the 'Strangers and Brothers' sequence published between 1940 and 1970. There can be no doubt that Snow's later fame and public standing rested upon the success of these novels, which sold widely and were translated into several languages. But the source of the more immediately providential turn in his career was the outbreak of the Second World War. Snow was temporarily drafted into the Civil Service with responsibility for the recruitment and deployment of physical scientists to support the war effort. This gave scope for his administrative talents, helped him to form contacts with important people, and indulged his yearning to observe the exercise of power from the inside. In 1945 he decided not to return to Cambridge, but instead took up two part-time posts which would enable him to continue writing fiction: he became a Civil Service Commissioner, dealing principally with scientific appointments, and in private industry he occupied a largely advisory position, and ultimately a directorship, at the English Electric Company. Following the success of his novels, he was eventually able to give up these posts, and it was his release from the constraints of his official position in 1959 that allowed him to begin his third career as public figure, controversial lecturer, and pundit. The Rede lecture was the first, and by a long way the most famous, of his pronouncements in this new role.

The 1960s were the peak of Snow's reputation. Books were written about his novels and plays; he received twenty honorary degrees in the course of the decade; and, above all, the idea of the 'two cultures', the source of his greatest fame, became the basis for a minor

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industry of comment and controversy. (It was noticeable that nearly all his honours came from foreign universities, and his pronouncements were received in other countries without those shafts of scepticism and even scorn with which his otherwise enthusiastic reception in Britain was often shot through.) Following the Labour Party's election victory in October 1964, he accepted Harold Wilson's invitation to become the second-in-command at the newly established Ministry of Technology, taking a Life Peerage and becoming the government spokesman on technology in the House of Lords. He resigned his ministerial post in April 1966, but thereafter he continued to sustain, and even increase, his prolific literary output, both fiction and non-fiction, and he travelled the world as lecturer, adviser, and public sage, holding forth on the problems of peace, poverty, and development. He died on 1 July 1980.

Development of the idea of the 'two cultures'

Many of the preoccupations which surfaced in the controversy surrounding 'The Two Cultures and the Scientific Revolution' now appear to belong distinctively to the late 1950s and early 1960s. But in fact the germ of the argument and the tone of the lecture can be traced back to much earlier stages of Snow's career, and to a surprising extent they reflect facets of Snow's intellectual development which were shaped and fixed in the 1930s. Snow himself always looked back to the inter-war period, and especially to the Cambridge of the 1930s, as a Golden Age of original scientific research, and he evidently imbibed a certain cultural conception of science that was especially powerful in those years,

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particularly among 'progressive' scientists and radical spokesmen for science such as J.D. Bernal and P.M.S. Blackett. He saw science as the great hope in a world which the traditional elites had mismanaged and led into economic depression and to the brink of a second devastating war. He also saw it as the one true meritocracy, in which sheer ability could overcome social disadvantages to obtain its true reward. And, in more parochial terms, the young Snow developed an antipathy to 'literary intellectuals', especially to what he identified as their snobbish and nostalgic social attitudes, which was never to leave him.

His apparent hankering for the rule of a scientific elite was one of the several grounds on which he was compared to the leading literary champion of science in the previous generation, H.G. Wells. In fact, Snow's early admiration for Wells provides one key to understanding the dynamics of the 'two cultures' controversy. A particularly revealing piece of evidence is the review of Wells's *Experiment in Autobiography* which Snow published in *The Cambridge Review* in 1934. Snow made clear that he admired Wells as 'a great writer' and 'a remarkable man', sympathising with his 'urge for a planned world', but he also indicated that he was irritated by the dismissive attitude towards Wells prevalent in Cambridge, especially among literary critics. Part of this attitude he attributed to the fact that Wells 'is the least nostalgic of great writers' ('he has deliberately spent much of his intelligence in making plans' for the future), and this early review already contains the seeds of his later attack on 'literary intellectuals' as 'natural Luddites'. Snow emphasised his scorn for such attitudes: 'if art be all gestures of futility, despair, and homesick escape,

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then Wells is less of an artist than anyone who ever wrote'.[10]

In fact, these differing responses to Wells constituted even more of a direct rehearsal for the controversy that was to erupt thirty years later than may be suggested by Snow's generalised irritation with the scornful attitude in Cambridge literary circles. For, in the very first number of *Scrutiny* in 1932, it was F.R. Leavis himself who reviewed Wells's latest book, *The Work, Wealth, and Happiness of Mankind*. Leavis was more than hostile, he was dismissive. Indeed, he doubted whether Wells was by now worth reviewing, but, in phrases uncannily anticipatory of his later assault on Snow, he argued that Wells had to be discussed 'as a case, a type, a portent. As such, he matters.' Leavis also rehearsed the same refrain about the limitations of the technocratic vision of human well-being: 'the efficiency of the machinery becomes the ultimate value, and this seems to us to mean something very different from expanding and richer human life'.[11] In the same issue, in his essay on 'the Literary Mind', Leavis had dismembered the American cultural commentator Max Eastman, and one of his most crushing rebukes was: 'He believes with implicit faith that [science] will settle all our problems for us. In short, he lives still in the age of H.G. Wells.'[12]

Snow's review of Wells contains unmistakable evidence that Leavis was one of the Cambridge critics he had in mind, not just in the reference to 'the opposition's' estimating T.S. Eliot (still a controversial and

[10] C.P. Snow, 'H.G. Wells and Ourselves', *The Cambridge Review*, 56 (19 Oct. and 30 Nov. 1934), 27–8, 148. Snow was much later to publish an admiring appreciation of Wells in his *Variety of Men* (London, 1967).
[11] F.R. Leavis, 'Babbitt Buys the World', *Scrutiny*, 1 (1932), 80, 82.
[12] F.R. Leavis, 'The Literary Mind', *Scrutiny*, 1 (1932), 30.

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far from 'canonised' author at this date) above Wells, but also in his pointed sneer about the way 'undergraduates can be led to say that Gerard Manley Hopkins was the only justification for the nineteenth century'. Leavis was not only one of Eliot's earliest academic champions, but he was also constantly accused of indoctrinating his students with 'correct' literary judgements, and Hopkins had been the one nineteenth-century writer treated favourably and at length in Leavis's *New Bearings in English Poetry* which had appeared in 1932. Understandably, public figures often address tomorrow's problems with yesterday's attitudes, but it is perhaps especially striking to see how much of the later thinking of Snow, who prided himself on always looking forward and on being the spokesman for those who 'have the future in their bones', should have been shaped by the antagonisms of Cambridge in the 1930s.

Snow's concern with the cultural role and political impact of science continually surfaced in both his novels and his official work throughout the 1940s and 1950s, but the first public airing of his idea about the 'two cultures' was in a short article with that title in the *New Statesman* in October 1956 (a good many sentences from this article were to re-appear essentially unchanged in the Rede lecture). It is even clearer in this early piece than in the later extended version just how far the whole conception was animated by a hostility to a particular conception of 'literary intellectuals'.[13] 'The traditional culture, which is, of course, mainly literary, is behaving like a state whose power is rapidly declining – standing on its precarious dignity, spending far too much energy on

[13] Snow apparently cultivated a more general hostility to intellectuals: 'He is on record as saying that he preferred decent soldiers to indifferent intellectuals. For him an intelligent person rather than an intellectual every time.' Snow, *Stranger and Brother*, p. 143.

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Alexandrian intricacies, occasionally letting fly in fits of aggressive pique quite beyond its means, too much on the defensive to show any generous imagination to the forces which must inevitably reshape it.' Other aspects of Snow's hostility emerge only through innuendo: the tone of scientific culture, he observes, is 'steadily heterosexual'; unlike in the literary culture, 'there is an absence . . . of the feline and oblique'.[14]

This early version of the 'two cultures' thesis is also revealing in two further ways. First, and in sharp contrast to the context in which the topic has mostly been discussed subsequently, it is noticeable that Snow is not here concerned with the structure and content of educational arrangements; he is talking about characteristics of research scientists and of writers as groups, and makes no practical proposals for shrinking the gap he identifies between them. Second, unlike the Rede lecture, and still more Snow's later reflections upon what he was 'primarily' getting at in that famous performance, his 1956 article does not raise the question of the relations between the rich and poor countries and the problems involved in policy decisions about the application of technology by scientifically illiterate politicians and administrators. His chief theme in this article is his conviction of the greater 'moral health' of scientists as a group over 'literary intellectuals'. Scientists, he asserts, are by nature concerned about the collective welfare and future of humanity. The contrast with 'the traditional culture' is made by way of an extraordinarily tendentious selection of examples: 'Dostoyevski sucking up to

[14] C.P. Snow, 'The Two Cultures', *New Statesman* (6 Oct. 1956), 413.

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the Chancellor Pobedonostsev who thought the only thing wrong with slavery was that there was not enough of it; the political decadence of the *avant-garde* of 1914, with Ezra Pound finishing up broadcasting for the Fascists; Claudel agreeing sanctimoniously with the Marshal about the virtue in others' suffering; Faulkner giving sentimental reasons for treating Negroes as a different species.' Such betrayals stemmed from the tendency of writers to let their perception of the tragic nature of individual life obscure the needs of their fellow human beings. From this attitude, 'made up of defeat, self-indulgence, and moral vanity, the scientific culture is almost totally immune'. The central message of this first sketch of 'the two cultures' is that 'the greatest enrichment the scientific culture could give us is . . . a moral one'.[15]

Two years later, in an article ostensibly discussing 'the age of Rutherford', Snow re-stated these themes (and again revealed just how rooted in the inter-war period the basic categories of his thinking were). The same contrasts recur: 'Between Rutherford and Blackett on the one hand, and, say, Wyndham Lewis and Ezra Pound on the other, who are on the side of their fellow human beings?' The literary figures were backward-looking, had 'ambiguous relations with Fascism', and were tainted with anti-Semitism, whereas, 'like all scientists, conservative or radical, [Rutherford] had, almost without thinking what it meant, the future in his

[15] *Ibid.*, 414. Snow developed further his conception of the inherently moralising nature of scientific research in 'The Moral Un-neutrality of Science', an address given to the American Association for the Advancement of Science in 1960, published in *Science* in 1961, and republished in his *Public Affairs* (London, 1971).

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bones'.[16] The origins of some of the most puzzling or provocative aspects of the Rede lecture (as well as some of its key phrases) are evident in these earlier sketches, and above all they help us better to understand the damning characterisation of 'literary intellectuals' offered in that lecture – offered, it must be remembered, by a man who was at the time best known as a novelist. For as one sympathetic observer quizzically remarked of that later performance: 'There can be no other interpretation of his lecture than that it takes towards literature a position of extreme antagonism.'[17]

One final observation to be borne in mind when reading 'The Two Cultures and the Scientific Revolution' concerns the genre to which it belongs. A lecture is above all an occasion, in both senses of the word – it is a social event and it is an opportunity. The lecturer has been invited: he or she is licensed to pronounce. (It would be interesting to analyse just how many of the major controversies in modern culture have had their origins in some form of public lecture.) Though the published form may be the length of an essay, there is an important difference of tone and intention between it and something written as an essay. The lecture never quite manages the intimate, meditative, sometimes almost whimsical tone that marks the classic essay. The lecture strikes a more declarative or argumentative pose, and even though the best lectures exploit a collusive relation with their audience, the form is inherently pedagogic (not for nothing has *ex cathedra*, from the professor's chair, become synonomous with 'speaking with authority'). This was a tone that came easily to Snow. His

[16] C.P. Snow, 'The Age of Rutherford', *Atlantic Monthly*, 102 (1958), 79, 80.

[17] Lionel Trilling, 'The Leavis–Snow Controversy', reprinted in his *Beyond Culture: Essays on Literature and Learning* (New York, 1965), p.152. This essay first appeared as 'A Comment on the

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writing constantly deploys the tropes of modesty to mask an assertion of authority: the manner is that of one who has weighed unmentioned evidence, who knows the grave consequences of getting it wrong, but who is better placed than anyone else to get it right.

In reading Snow's text, therefore, we need to remember its origins, and to accept that he was not a systematic thinker nor, in some ways, a particularly exact writer. His preferred ground was that of the Big Idea: he seized it, turned it in a somewhat unconventional direction, illustrated it with a few facts and anecdotes taken from widely differing domains, and reiterated it in accessible, forceful prose. As he became more famous, the idea tended to get bigger, the facts fewer, and the prose more forceful.[18] He aimed, above all, to attract attention to what he had to say. Judged by this criterion, the success of his Rede lecture must be beyond dispute.

Reactions and controversies

Although the notion of the 'two cultures' has attracted almost continuous comment, in some form or another, since Snow first articulated it, the earlier stages of response were naturally the most intense and the most revealing. One episode, in particular, stands out: the furore surrounding F.R. Leavis's ferocious attack on Snow and his lecture in 1962. This involved the clash of fundamentally opposed conceptions of how to think about human well-being, and, partly because it provoked the public expression of such strong feelings (and

Leavis–Snow Controversy', *Commentary* (1962), and it was also published in *University Quarterly*, 17 (1962), 9–32; Snow cites this essay at note 53 below, but ascribes it to 1959.

[18] This is most of all evident in the later pieces collected in *Public Affairs*, such as 'The State of Siege', delivered in 1968.

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strong words), it has since been taken as emblematic of the very division Snow had attempted to identify.

The text of the Rede lecture was published in *Encounter* in two parts, in June and July 1959, and the August number then included a small symposium of immediate responses.[19] These reactions were overwhelmingly favourable, and Snow was praised for his 'brilliant' delineation of the divide between the cultures.[20] (The historian J.H. Plumb sounded a note of reservation, preferring to see the tensions which Snow had referred to as part of a larger social development, with the scientists as a new class threatening to displace the largely upper-middle-class literary elite that had held sway in the years from 1910 to 1950.) Moreover, it was clear that most of the respondents believed, implicitly or explicitly, that the pressing problem was to raise the status of science and to increase the scientific literacy of the non-scientists rather than vice versa. More broadly, the published form of the lecture attracted international comment, the general tendency of which was to congratulate Snow for having diagnosed an increasingly pressing modern problem.

In reflecting on the first wave of response, therefore,

[19] C.P. Snow, 'The Two Cultures and the Scientific Revolution', *Encounter*, 12 (June 1959), 17–24; 13 (July 1959), 22–7. '"The Two Cultures": a Discussion of C.P. Snow's Views', 13 (August 1959), 67–73, contained contributions from Walter Allen, Bernard Lovell, J.H. Plumb, David Riesman, Bertrand Russell, John Cockcroft, and Michael Ayrton.

[20] The brief communication from the 87-year-old Bertrand Russell claimed that the divide between the cultures was of fairly recent origin. He sought to support this claim by saying: 'Cartwright, who invented the power loom, was my grandfather's tutor and taught him to construe the odes of Horace', though he perhaps slightly weakened the force of the example by adding, 'so far as I have been able to discover, his invention of the power loom remained unknown to my grandfather' (71).

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Snow felt he had good cause to be satisfied.[21] 'Just as the concept of the "two cultures" has been accepted, so has the existence of a gulf between them.' Indeed, Snow now wanted to press the case further: 'The division between the cultures is inherent in an advanced industrial society.' But again, though he now offered the occasional mild qualification, he returned to his central concern with the way in which major twentieth-century writers had encouraged an undiscriminating and ultimately selfish hostility to the 'industrial-scientific revolution' (he made clear that he saw the Industrial Revolution of the late-eighteenth century as only the first stage in an extended process of the application of science to production). Revealingly, he gave over the bulk of his 'reply' (for such it effectively was) to re-stating this case against criticisms of his optimistic technologism by literary and cultural critics (such as G.H. Bantock, a old Scrutineer[22]). After this, the attention Snow's thesis received began to die down, but this proved to be only the lull before a remarkable polemical storm.

F.R. Leavis was due to retire from his post as University Reader in English at Cambridge in the summer of 1962. For more than thirty years he had been one of the most distinctive, controversial, and influential literary critics in the English-speaking world, though he had long chafed at what he felt was a lack of due recognition (his own university, for example, had only promoted him three years before his retirement). With an intensity which often shaded into ferocity his

[21] C.P. Snow, 'The "Two Cultures" Controversy: Afterthoughts', *Encounter*, 14 (Feb. 1960), 64–8.
[22] G.H. Bantock, 'A Scream of Horror', *The Listener* (17 Sept. 1959), 427–8.

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criticism had attempted to vindicate the claims of 'great' literature (he was not much interested in any other kind) to be a unique and living repository of the most vital, in every sense, human responses. In the complex, deeply-felt experience enacted in these incomparable works of the imagination he saw an antidote, now the only possible antidote, to the cheapening and corrupting of experience which the dominant forces of modern mass society conspired to promote. The criticism and teaching of English literature, therefore, presented itself to Leavis as a calling of awesome and almost sacred responsibility. For the trivial or self-serving or merely fashionable he had no tolerance whatsoever – his combination of puritan earnestness and passionate sense of the lateness of the hour ruled out compromise and coexistence – and fewer and fewer people or books were safe from his scarifying contempt as he became increasingly embittered and beleaguered. This was the man whom the students at Downing, his own college in Cambridge, invited to give the Richmond lecture in 1962. Leavis had not yet made a public pronouncement on Snow's 'two cultures' thesis: he now did so to such effect that the whole episode is still often referred to as 'the Snow–Leavis controversy'.[23]

In retrospect, one can only feel that a malevolent deity setting out to design a single figure in whom the largest number of Leavis's deepest antipathies would find themselves embodied could not have done better than to create Charles Percy Snow. There can never have been any question about Leavis's opinion of Snow's novels. Leavis's disdain for writing he regarded as superficial,

[23] See the material collected in David K. Cornelius and Edwin St Vincent (eds.), *Cultures in Conflict: Perspectives on the Snow-Leavis Controversy* (Chicago, 1964).

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