

## The Two Cultures: Sixty Years On

Date and Location: 24th April 2019 at The British Academy and The Royal Society

Chair: The Rt Hon. the Lord Willetts FRS  
Chair, The Foundation for Science and Technology

Speakers: Chris Skidmore MP  
Minister of State for Universities, Science, Research and Innovation  
Department for Business, Energy and Industrial Strategy and Department  
for Education  
Sir Venki Ramakrishnan PRS FMedSci  
President, The Royal Society  
Professor Helen Small  
Merton Professor of English Language and Literature, University of Oxford

Panellists: Professor Jane Macnaughton  
Professor of Medical Humanities, Department of Anthropology,  
Durham University  
Dr Sarah Main, Executive Director, Campaign for Science and Engineering  
(CaSE)

Sponsors: The Royal Commission for the Exhibition of 1851

Audio Files: [www.foundation.org.uk](http://www.foundation.org.uk)

Hash tag: #fst2cultures . Twitter Handle: @FoundSciTech .

Opening the meeting, LORD WILLETTS said it was 60 years since 7 May 1959 when CP Snow had given the Rede Lecture about the conflict between the cultures of the humanities and science. Amongst those present, Baroness Onora O'Neill had given the Rede lecture on this subject on the 50th anniversary of the original, and Sir Walter Bodmer had attended the original lecture.

CHRIS SKIDMORE said that the arts and humanities had particularly shaped his views as a minister, having held an AHRC studentship, and he wished to be regarded as much as a Minister for the Humanities as a Minister for Science. Although at the time when Snow's lecture had been given the humanities and science had been regarded as comparable, now a good history graduate would be fortunate to earn 60% of a scientist. It was good that, over the last 60 years, the relationship between arts and science had become more fluid, and that the barriers

Snow had described about course structures and town/gown relations had lessened. There had also been something like a tenfold increase in the proportion of young people entering higher education in this period.

Snow's lament about two galaxies had been crossed in many ways, such as when Steve Jobs launched the iPad 2 he had explained that technology was not enough to make it successful, that there were many arts contributions in the video games industry, and the offering of degrees by UCL since 2012 which spanned liberal arts and science. That said, the UK's educational system remained highly specialised. That might be a barrier if the UK was to lead in contributing to the global challenges which now needed to be tackled, for example to ensure that the development and deployment of artificial intelligence was ethical. Other barriers which needed to be removed included widening degree options from the traditional three year model, and accommodating the requirements

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of business and students more flexibly. Snow had not really offered answers to bridge his Two Cultures. If the Government's 2.4% of GDP target was to be met then 60% of the population leaving education would need a first degree, and this would need to involve progress with degree apprenticeships and other industrial placements as part of a degree.

Snow had characterised pure and applied science, and highlighted the value of engineering. His lecture had been permeated by his personal experience, such as his great grandfather's work as an agricultural labourer, and he had recognised the challenges of poverty of ambition.

Currently there was a new Two Cultures between those who did not appreciate the benefits of universities and those who did. Universities needed to publicise their civil contributions effectively. There was a danger that Snow's Two Cultures perpetuated a myth about pure science creating a divide between academia and the real world. Now, more than ever, such myths needed to be broken down.

SIR VENKI RAMAKRISHNAN said that he had first heard of Snow as the author of the introduction to GH Hardy's *A Mathematician's Apology*. Although Snow and Hardy were friends and fellow intellectuals, they were very different. Snow was a London man, interested in the corridors of power, whereas Hardy was a reserved Cambridge academic perhaps more interested in getting to the bottom of things than being on top of things. The main thrust of Snow's essay was the seemingly unbridgeable chasm between the arts and humanities on the one hand and science on the other. In particular he complained that it was socially acceptable to be ignorant of science, but not to be ignorant of literature.

Peter Lachmann has commented that Snow in his lecture says little about historians, social scientists, economists and music, and that his references to science are almost entirely to physics and not the biological sciences. He also made no mention of Watson and Crick's 1953 paper on the structure of DNA, which did so much to fire the revolution in molecular biology. So arguably Snow was not even representative of his own time. Now science had become so technical that it was not understandable even to other scientists outside a narrow field. Accordingly, although there was criticism of aiming to publish in academic journals with high impact factors, so far nobody had found a good alternative. There were similar areas of specialist expertise in the arts and humanities, so there was not

so much a chasm between Two Cultures but many individual branches of knowledge.

There was however a different chasm which had always existed, between rational, empirical based ways of knowing and other ways based on emotion, faith or moral values. Modern scientific method had at its heart reliance on reproducible and demonstrable empirical evidence. Some, perhaps based in humanities departments of universities, resented the excessive influence of science and technology in society and academia today, and within scientists there could be a hierarchy of arrogance. However, those in the pure sciences were slowly realising that they did not have all the answers, for example to the working of the brain. Taking this argument too far, that everything was the result of cultural bias and that there was no objective truth, was nonsense. Whilst scientists thought of themselves as objective and guardians of the truth, the reality was that both scientists and non-scientists were highly emotional beings. Daniel Kahneman's brilliant book, *Thinking, Fast and Slow*, gave examples of individuals instinctively acting in one way when rational thought would argue otherwise. Social scientists and psychologists could help us understand that we had to acknowledge our emotional selves if we were to convince the wider public about issues such as homeopathy, vaccination and GM crops. In the 2016 referendum debate one side had set out rational arguments about GDP and employment, and the other had talked about identity, sovereignty and control. They were not really having the same debate, and had illustrated the chasm between two cultures not talking to the other.

Bridging the gap between scientists and non-scientists was ever more important. Everyone had a stake in science, much of which was publicly funded. In an increasingly technological world, decisions would increasingly be made based on science. We needed to foster intelligent debate about key issues, such as the impact of artificial intelligence and genome editing of humans. Scientists would need to shred some of their arrogance, and recognise that humanities and the arts could offer a different way of communicating which resonated better with many people. This did not mean compromising on evidence-based analysis, but recognising that our emotional side was just as real. Those in the humanities and arts should become familiar with the basic concepts of science. We should ask if the current segregation of students at an earlier age than other countries was sensible; countries which formerly used the British education system had moved

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away from it. That would involve educating students all through secondary school in both the humanities and sciences. Otherwise a chasm would continue and Britain would be ill equipped for the 21st century.

PROFESSOR HELEN SMALL said that Humanities scholars tended not to think of Snow's lecture in isolation, but of his conflict with FR Leavis. She would seek to argue that using a bad or extreme argument could yield something of intellectual and political use. Two Culture arguments were polemical, taking credibility by walking a thin line between plain statement and overstatement, often with institutional encouragement to stage a conflict. Snow vs Leavis stood out for the animus injected from the Humanities side. For Arnold, science gave only knowledge, not beauty or emotion. Huxley and Arnold assumed that human beings were divided at birth, which diluted the extent to which education was responsible for the divide. For Snow scientific culture was rigorous and optimistic about progress. He wanted to counter a bias against science, institutionalised he thought, which tended towards pessimism. Leavis thought Snow's view was dangerous and self-aggrandising.

The easy explanation for the hardening of the Two Cultures conflict in the early 1960s was the growing institutional power of science. However, the attention to the lecture at the time, and more recently, probably lay more with the extent of the vitriol expended by one academic on another. There might be a suspicion that truth as well as distortion lay behind the lack of politeness. But so much anger from the humanist Leavis led one to wonder what degree of truth survived this performance. Leavis owed quite a lot to Arnold's sense of culture as self-perfection, but also to his definition of criticism as an exercise of freedom. Culture seemed to him in imminent danger from philistines like Snow, and he loathed the public intellectualism of Snow as an exemplar of metropolitan London with its media and journalism. Leavis's fundamental question was not about improving social condition, but on ultimately what was to live for. For him, although all could be equal, spiritually there could be pure difference. A university should be a centre of consciousness for the community.

The Two Cultures debate told us little about the work being done in universities at the time, but more about the wider social, cultural and political factors then current. These included social class, meritocracy and the relation between technological progress and political progress. Important to Leavis

was the appearance, four years after Snow's lecture, of the Robbins Report on university expansion, which he felt was grimly symptomatic of the state of higher education and politics.

The best critique of the Two Cultures had incorporated a third culture of the social sciences, or stressed an underlying unity to all intellectual endeavours. Snow recognised he could be oversimplifying, talking in terms of a search for more than a dashing metaphor, but less than a cultural map. More critically, his argument of cultural differentiation was quasi-anthropological, and was not empirically grounded. Leavis said less neutrally that there was no evidence for these observations of Snow. However expressed, Snow's claim was that educational specialisation affects the psychological development of individuals, and the group behaviour of its recipients as they go about their professional and public life. This was a tricky area for social scientists. Tony Becher and Paul Trowler observed that training in academic disciplines was induction into a particular way of being, but some room should be allowed for the creative power of individuals. They saw initiation into academic communities as an efficient process; they were social facts which are not rigid and unchanging but were constraining.

How a humanities professor, a social scientist and a scientist spoke at a seminar revealed their respective conventions of intellectual behaviour, and as observed at research grant allocation committees, humanities scholars tended to behave as if the world were solely a construction of language and rhetoric, whereas scientists implied that the more expensive a machine was the more important it must be. The difficult question was how much such patterned divergences told us about core values. Such differences might be relatively subdued in a public conversation between the British Academy and the Royal Society, where the objective was to learn amicably from each other. Conditions of competition might reduce competition to extremes, but co-operation produce far less predictable behaviour. "Quasi-anthropological" therefore seemed a helpful description of the Two Cultures debate. To describe our disciplinary communities well, anthropologically, would require much more observational data than the Two Cultures debate provided.

The most dispiriting aspect of the debate was the extent of public appetite for seeing intellectual endeavour as a conflict. Three suggestions were made to close. First, a rescripting of two cultures today would

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focus less on disciplines and more on methods. Almost all disciplines practised both qualitative and quantitative approaches, but arguably there was not enough systematic encouragement to incorporate both methods in a way alive to the limitations, and value, of both rhetoric and numbers. Second, Leavis's claim that the critical study of literature supremely had authority to speak about the ultimate ends of life was less likely to get a hearing now than sixty years ago. Education, and research, had near goals as well as end goals. It was much less clear now that the public turned to literature in search of truths about Life, indeed there had been a substantial switch from the written word to the image. Widening the claim from literature to all cultures which humans experience strengthened the advocacy for the humanities. Digital media and AI were changing the world, but science alone could not explain the primary forces of human identity. Finally, the disagreement between Snow and Leavis over how far human achievement led to progress remained politically live. Snow pointed to the impact of applied science in the twentieth century to enable humans to do good on a large scale. Leavis's counter-claim was that advances in technology and medicine would not suffice for happiness. Domestic politics of late had shown that this difference in perspective could not be reasoned away; we had to learn and live with it.

PROFESSOR JANE MACNAUGHTON said she spoke as someone engaged in interdisciplinary research as a professor of medical humanities. The Wellcome Trust, in particular, had been good at funding the importation of wider disciplines to improve health. She agreed with the Minister's focus not on disciplines but on subject matter. An interdisciplinary approach was vital for work on public health and on health inequalities. There was a big responsibility to nurture the next generation so that they were not prejudiced about science, or lacked core scientific literacy. Interdisciplinary research required talking effectively across disciplines, and a gift for suggesting alternative ways forward. This required humility, not always abundant in academic communities, a focus on simplicity to make progress, and a willingness to learn from others. It also had to be based on strong disciplinary capability, with deep knowledge but a willingness to think laterally.

DR SARAH MAIN said there was much about the Two Cultures debate which remained relevant. There continued to be debate of how research methods could be of value to the wider economy. Arguably Snow's

thesis was based more on conviction than on data. His two cultures seemed relevant to academia but not to the significant research world in industry, and that was a major omission when the research of corporations frequently stimulated economic change. Some of Snow's predictions about gaps between rich and poor, and the rising potential of some nations, now seemed dated. China now had a substantial research population. It was sobering that a third of Russian researchers were women in 1959, but this proportion had not even been achieved in the UK today. The current Government's commitment to research reaching 2.4% of GDP was firmly based on Snow's thesis of research benefitting all.

In the subsequent discussion there was widespread support for giving students a broader education in both science and the humanities. Some suggested that the greatest value of education for many was learning how to think, and it was also explained that the culture in Oxbridge colleges of academics in arts and science mixing together reduced some of the apparent gulf. There was also significant craftsmanship in many areas of science, and often this was related to education preparing students for professional practice. There were however formidable political difficulties in securing political support in Parliament to reform GCSEs and A Levels, and this was not feasible in the short term. Past attempts to reform in this area had not succeeded. Perhaps more promising would be to encourage universities to deliver greater breadth in provision. Scotland had historically done better than England in providing more breadth in 16-18 education. In terms of English education post 16, perhaps a Government commission could be helpful, but it would have to involve universities, whose entrance requirements heavily influenced 16-18 provision. Indeed in the leading universities admissions was frequently handled by academic departments rather than centrally, so widespread support for reform would be needed for it to be successful. The international success of leading UK universities led to their being reluctant to change their specific admission requirements.

An alternative Two Cultures in the present could be the perceived divide between haves and have nots. Some universities were providing first degree provision which was more attractive to diverse communities, and Foundation years made a contribution to this. Soon after Snow's lecture there had been a substantial expansion in higher education. Further expansion now, in suitably diverse ways, might benefit the current

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divide between haves and have nots. However, it had to be recognised that the current pattern of early depth suited the Treasury, in terms of reducing public expenditure if many first degrees were completed by 21, which was earlier than US and European practice. So reform of UK higher education finances, to produce less burden for the public purse, might be needed before increasing breadth could be implemented.

The reform to introduce AS Levels in 2000 had produced some helpful breadth to English post 16 provision, and Cambridge's support for AS Levels when the Government more recently had turned away from them had been helpful. The rigid separation between academic and technical qualifications at 16-18 was also problematic.

Developing an earlier theme, given the depth of research endeavour currently, arguably there were now closer to 200 cultures than two. Although some employers wanted a breadth of education and an ability to think creatively and ethically, there was also much modern employer demand for depth of education in computer science.

Although there remained differences between empiricists and ideologues, it had to be recognised that all individuals were also emotional beings. It remained problematic that it was hard to interest non-scientists in key scientific developments.

The bulk of major issues faced by Government departments needed social science as well as science to resolve. In the short term there would be an important battle within Government, during the next Spending Review, about the contribution which universities and research could make to the UK economy, and to the value of open recruitment, via immigration, in contributing to this. To deliver the 2.4% of GDP from research there would need to be 50,000 more researchers active in the UK, and sustained investment based on Grand Challenges.

John Neilson

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## Useful Reading:

The Two Cultures is the first part of an influential 1959 Rede Lecture by British Scientist and novelist C.P. Snow. Its premise was that the intellectual life of the whole of western society was divided into two cultures: the sciences and the humanities which was a major hindrance to solving the world's problems.

The Two Cultures and the Scientific Revolution (1959) was a published version of the lectures in book form.

The talk was delivered 7 May 1959 in the Senate House, Cambridge.

The Rede Lecture 1959 C.P. Snow  
[www.s-f-walker.org.uk/pubsebooks/2cultures/Rede-lecture-2-cultures.pdf](http://www.s-f-walker.org.uk/pubsebooks/2cultures/Rede-lecture-2-cultures.pdf)

The Two Cultures C.P. Snow  
Cambridge University Press  
[www.cambridge.org/gb/academic/subjects/philosophy/philosophy-general-interest/two-cultures-1?format=PB&isbn=9781107606142](http://www.cambridge.org/gb/academic/subjects/philosophy/philosophy-general-interest/two-cultures-1?format=PB&isbn=9781107606142)

Two Cultures? Canto Classics F.R. Leavis Contributor: Stefan Collini  
The significance of C.P. Snow  
[www.amazon.co.uk/Two-Cultures-Canto-Classics-Leavis-ebook/dp/B00FF6QBCK](http://www.amazon.co.uk/Two-Cultures-Canto-Classics-Leavis-ebook/dp/B00FF6QBCK)

From Two Cultures to No Culture: C. P. Snow's Two Cultures Lecture Fifty Years On  
Raymond Tallis; Roger Kimball; Frank Furedi; Edited by Robert Whelan  
[www.amazon.co.uk/Two-Cultures-No-Culture-Lecture-ebook](http://www.amazon.co.uk/Two-Cultures-No-Culture-Lecture-ebook)

Reviews in History  
The Two Cultures Controversy: Science, Literature and Cultural Politics in Postwar Britain  
Guy Ortolano  
Reviewer: Professor Patricia Waugh, University of Durham  
[www.reviews.history.ac.uk/review/849](http://www.reviews.history.ac.uk/review/849)