
Snow, Wilson and the Scientific Revolution

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Introduction

The strength, the solvency, the influence of Britain...are going to depend... to a unique extent on the speed with which we come to terms with the world of change. There is no more dangerous illusion than the comfortable doctrine that the world owes us a living...that whatever we do, whenever we run into trouble, we can always rely on a special relationship with someone or other to bail us out. From now on Britain will have as much influence in the world as we can earn, as we can deserve. We have no accumulated reserves on which to live (Wilson, 1964, p. 14).

So began Harold Wilson's, often misquoted, 'white heat of technological revolution' speech given to the Labour Party's Annual Conference in 1963. Arguably Wilson's most significant speech, it offered a vision of the future based on the impact of scientific and technological progress. As well as offering an alternative to the jaded approach of Harold Macmillan's Conservative Government, it also provided a new ideological basis for the Labour Party - freeing the Party from the electorate's perceptions which associated Labour with post-war austerity and nationalisation and embracing a new spirit of progress in tune with the times. The speech provided the Labour Party with the ideological wherewithal to win the 1964 General Election - albeit with a wafer-thin majority.

This article explores the origins of Wilson's speech and its linkages to the ideas of the popular novelist C. P. Snow - basically a belief in the possibilities of generalised human progress - measured in terms of health, prosperity

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and life-expectancy and based on a combination of appropriate and relevant education and the application of applied science. First, however some background to the period – a period when post-war austerity was rapidly giving way to rampant consumerism.

Background – the post-war years

Britain emerged from the Second World War exhausted and impoverished but with certain advantages compared to its war damaged competitors – most notably Germany and France. In civil aviation, for example, Britain was a global leader and retained more or less captive markets in what remained of the Empire. Similarly, in the automotive industry the country possessed a number of leading manufacturers and this was also the case in numerous other industries such as machine tools, chemicals and glass. The war had massively enhanced the power of the trade unions as labour shortages and the urgent need to maintain high levels of output prompted government to ‘incorporate’ union leaders into the apparatus of the state. Most prominently Ernest Bevin, the leader of the Transport and General Workers’ Union, sat in Churchill’s War Cabinet occupying a position second only to the Prime Minister himself – a ‘trick’ Wilson attempted to repeat by bringing TGWU leader Frank Cousins into his government in 1964. This ‘collaboration’, as it was viewed in some quarters of the labour movement, generated protest – most notably in the form of a shop stewards’ movement opposed to the national unions and often left leaning or even Communist in terms of ideological commitment.

In the years immediately following the war the Labour Government initiated a nationalisation programme which saw whole areas of the economy brought into public ownership. At the same time the government established the National Health Service and used local

councils as agents of centrally determined policy to supply and administer many elements of the welfare state such as education, housing and other social services. In the long term the commitment to the NHS, and the welfare state in general, was to prove immensely costly and difficult to sustain. Although attitudes to public ownership shifted from time to time depending on the flux of political opinion, the general trend for the thirty years after the war was to accept the so called post war consensus and sustain a ‘mixed economy’. Similarly, a desire to maintain high levels of employment remained common ground between the main UK political parties and Keynesian economic policy was generally accepted as providing the route map to its achievement. The very high levels of regional unemployment experienced between the wars provided the backdrop for post-war politics – the Conservatives heavy defeat in 1945 being largely attributed to their apparent ‘inaction’ on unemployment during their years of office in the 1920s and 30s – and influenced government policy in terms of ‘directing’ industry to vulnerable regions. A rule of thumb myth emerged which asserted that any Government presiding over in excess of 1 million unemployed would never be re-elected – a myth eventually exposed as such in the 1980s when unemployment rose to over 3 million but the Conservatives were nevertheless re-elected.

The assumptions relating to work in the 1950s were straightforward. Britain was an industrial country, a place where factories were commonplace and environmental pollution an accepted part of everyday life. A generation that had experienced the insecurities of the 1930s and the impact of two world wars wanted jobs and the quality of the jobs was hardly an issue. Jobs were plentiful and the mood of the country optimistic in spite of a diminishing role in the world and the on-going retreat from Empire. However, a generation was growing-up which had not experienced the 1930s or the threat and

actuality of war and desired/demanded more from life than a 'dead-end' industrial job in a factory. In a famous speech in 1957 the then Prime Minister, Harold Macmillan, made the claim that 'most of our people have never had it so good' and he was probably correct. Post-war austerity was a thing of the past and people were eager to enjoy the emerging consumer society and the products advertised nightly on the newly introduced commercial TV. Credit facilities were expanded and ownership of consumer durables ranging from refrigerators to automobiles became commonplace. The decline of the British sea-side resorts began as more and more people enjoyed continental holidays. American youth culture began to dominate the thinking of the newly discovered 'teenagers'. Having said this, however, embedded in Macmillan's speech were some clear warnings relating to wages, inflation and employment – matters which would become major issues over the next thirty years and beyond.

By the 1960s there was a growing body of opinion which claimed that full employment and extensive unionisation were linked to wage inflation and low levels of productivity. Fear of recession and unemployment had, for the moment at least, been substantially removed and policy makers were attracted to alternative forms of pay restraint – effectively intervening directly in the labour market through the imposition of incomes policy; a policy that was to prove the undoing of a succession of governments in the 1960s and 70s. Meanwhile, however, attitudes to work and jobs were changing. The so called 'killer smog' of 1952 had led to the Clean Air Act 1956 and a sort of proto-environmentalism was stirring. It was no longer quite acceptable to build factories on local street corners and, encouraged by the construction of New Towns, industry began to relocate to areas far removed from the urban centres to custom built facilities many miles away. In the same time frame the school leaving age had

risen from 14 years to 15 in 1947 and young people were entering the jobs market with slightly raised aspirations and no longer prepared to be the 'deferential workers' of the past. Apprenticeships began their long period of decline and the ending of National Service in 1960 killed the final resistance to the emerging youth culture – a culture more concerned with spending than saving.

Although in the 1950s the world of work remained much as it had existed between the wars, new technologies were developing which threatened the old, labour intensive industries of the past. Applied science was poised to become ever more important and industrial R&D ever more crucial to economic success in emerging industries such as computers, atomic energy, telecommunication, electronics and pharmaceuticals. In the USA, for example, RCA Laboratories had carried out the pioneering work on colour television during the 1940s (launching the service in 1951) and produced the first germanium transistor for consumer electronics in 1952. Meanwhile, Germany and Japan had made a remarkable recovery from the destruction of the war. The former in automotive, chemicals and electrical goods, the latter in automotive but also in electronics where Japanese manufacturers successfully produced vast quantities of cheap transistor radios – by 1959 Japan was exporting 6 million radios a year to the USA and proportionally as many to Britain. The old order was rapidly changing and it was in this context that C. P. Snow gave his famous, notoriously controversial and lastingly influential Rede Lecture *The Two Cultures* in Cambridge in 1959.

C. P. Snow discovers the 'two cultures'

Charles Percy (C.P.) Snow began his career as a scientist. He attended Leicester's University College where he took a First in chemistry in 1927 and an MSc. in physics in

1928, before gaining a scholarship to Cambridge as a research student, completing a PhD in Physics in 1930 and becoming a Fellow of Christ's College in the same year. He began his literary career whilst still a student and published his first novel in 1932. Cambridge and science form the background to several of Snow's books – most prominently *The Masters* (1951) and *The New Men* (1954), the latter dealing with the development of Britain's atomic bomb, and *The Physicists* (published posthumously in 1981). His most famous work *The Corridors of Power* was published in 1964 and it can be argued that it was during the late 1950s and early 60s that Snow achieved the height of his literary powers and influence. Snow was a self-declared progressive; a 'man of the left' who, in spite of a somewhat pessimistic world view, took an optimistic view of the future – a future underwritten by the possibilities for human progress offered by applied science.

In his Rede Lecture, Snow claimed that the developed nations, including Britain, were entering a new, science based, industrial era which he characterised as a 'scientific revolution', qualitatively distinct from the industrial revolution which had preceded it and characterised by 'discontinuous change'. Given Britain's particular heritage this would prove particularly challenging. As he put it, comparing the industrial revolution of the 18th and 19th centuries with what was occurring in the 20th:-

...by the industrial revolution, I mean the gradual use of machines, the employment of men and women in factories, the change in this country from a population mainly of agricultural labourers to a population mainly engaged in making things in factoriesOut of it grew another change, closely related to the first, but far more scientific, far quicker, and probably far more prodigious in its result. This change comes from the application of real science to industry....I

believe the industrial society of electronics, atomic energy, automation, is in cardinal respects different in kind from anything that has gone before, and will change the world much more. It is this transformation that, in my view, is entitled to the name scientific revolution. (Snow, 1959/1971, pp. 30-1).

Snow saw Britain as singularly ill equipped to respond to the multitude of changes that this revolution would inevitably bring. Not least he claimed that the country's educational system was not providing the rising generation with the essential knowledge and skills necessary to cope in a world where an understanding and appreciation of science, applied science, technology and engineering would be crucial. This inadequacy, he argued, could be largely attributed to the influence of the intellectuals and specifically the 'literary intellectuals' with their abiding hostility to industrialisation - as he put it, 'intellectuals, in particular literary intellectuals, are natural Luddites'. In Snow's view, 'two cultures' had emerged – the one scientific, optimistic and attuned to the modern world; the other literary, pessimistic, hostile to the modern world but nevertheless possessing an inordinate and unjustifiable amount of influence.

According to Snow, the huge social changes wrought by the industrial revolution had been more or less ignored, or viewed with a sort of snobbish disdain, by the prevailing 19th century cultural elite (what he termed the 'traditional culture') – who at the same time had gained immense material advantage from the wealth this revolution had generated. Hence,

the first wave of the industrial revolution crept on, without anyone noticing what was happening. It was, of course – or at least destined to become....by far the biggest transformation in society since the beginning of agriculture....But the traditional culture didn't notice: or when it did notice, didn't like what it saw....The traditional culture

became more abstracted from it as it became more wealthy. (Snow, 1959/1971, p. 26)

According to Snow, this failure by Britain's cultural elite to engage with the true 'spirit of the age' (Zeitgeist) but instead retreat into an illusory world of rural idylls and self-indulgent pessimism had cost the country its industrial edge in the 19th century. As he saw it, Britain was currently poised to repeat this error unless what we might now term a massive 'paradigm shift' were to occur in social attitudes and educational provision. In Snow's view the key, perhaps the only, means to bring this about, and ensure thereby Britain's survival as a prosperous nation, was to train more scientists, engineers and technicians capable of understanding and promoting the scientific revolution.

Snow's lecture, subsequently published as *The Two Cultures and the Scientific Revolution*, generated massive interest and caused a huge furore, with supporters and opponents taking sides in what became an international debate. Most prominently he was subjected to a virulent personal attack by a now more or less forgotten Cambridge literary critic called F.R. Leavis. In 1963 Snow responded to all of this, but not to Leavis directly, in *The Two Cultures: A Second Look*, in which he provided a précis of his argument in the following terms:-

In our society...we have lost the pretence of a common culture....This is serious for our creative, intellectual and, above all, our moral life. It is leading us to interpret the past wrongly, to misjudge the present, and to deny our hopes for the future....I gave as the most pointed example of this lack of communication in the shape of two groups of people, representing what I have christened 'the two cultures'. One of these contained the scientists, whose weight, achievement and influence did not need stressing. The other contained the literary intellectuals (who)

represent, vocalise, and to some extent shape and predict the mood of the non-scientific culture: they do not make the decisions, but their words seep into the minds of those who do. Between these two groups – the scientists and the literary intellectuals – there is little communication and, instead of fellow-feeling, something like hostility (and he went on) There is, of course no complete solution...But we can do something. The chief means open to us is education – education mainly in primary and secondary schools, but also in colleges and universities. There is no excuse for letting another generation be as vastly ignorant, or as devoid of understanding and sympathy, as we are ourselves. (Snow, 1963/1971, pp. 51-2).

Harold Wilson and the 'scientific revolution'

History has not been kind to Harold Wilson and it is difficult now to strip away the damage his reputation sustained during his years as Prime Minister from 1964 to 1970 and from 1974 to 76 and see him as he appeared in 1963, the year he became leader of the Labour Party. In 1963 Wilson was 47 years old and, by the standards of the times, very much the bright young man. Although he had won a scholarship to Jesus College, Oxford where he was academically outstanding and became one of the youngest dons at the age of 21 in 1937, he never changed his Yorkshire accent – choosing instead to maintain 'the common touch'. He was a Research Fellow at University College under the then Master, William Beveridge – so called 'father of the welfare state' – and continued to work with him as a temporary civil servant on the outbreak of war in 1939. His work with Beveridge stimulated Wilson's passion for statistics and he later became Director of Economics and Statistics at the Ministry of Fuel and Power where he wrote a paper on the future of the British coal industry. Wilson's capacity for hard work and

mastery of detail made him a successful civil servant and his academic career was more or less assured. However, just as Snow's true vocation was writing, Wilson's was politics.

Wilson was elected as Labour MP for Ormskirk in 1945 (moving to Huyten in 1950) in the Labour landslide of that year and made rapid progress – becoming President of the Board of Trade in 1947 and the youngest member of the Cabinet in the 20th century at the age of 31. Labour lost power in 1951 and Wilson positioned himself on the left of the Party – an associate of Aneurin Bevan the so called 'father of the NHS' – although he did not support Bevan in the leadership election of 1955 opting instead for the right wing candidate, Hugh Gaitskell. Gaitskell appointed Wilson to the Shadow Cabinet and made him Shadow Chancellor of the Exchequer and, following the Labour Party's defeat in the General Election of 1959, Shadow Foreign Secretary. When Gaitskell died suddenly in 1963, Wilson was elected as Leader of the Labour Party, becoming Leader of the Opposition at a very low point in the fortunes of the governing Conservatives led by the ailing Harold Macmillan.

Snow and Wilson, in spite of the ten years difference in their ages, had much in common. Both were hard-working, ambitious, provincial scholarship boys – academically successful and upwardly mobile. Both were driven by the fear of failure inherited from the insecurities of their parents' lives – treading a very narrow line between lower middle class respectability and disaster. Snow's father had been made bankrupt and Wilson's father had experienced periods of unemployment – failure and the 'half-life' of genteel poverty are constant themes in Snow's fiction and Wilson often referred to the threat of unemployment. Both men were successful temporary civil servants during the Second World War; Wilson, as has been seen, at the Ministry of Fuel and Power and Snow the Ministry of Labour – Wilson being awarded an OBE and Snow a CBE for their services. Both were

technocrats and, in Snow's words, 'new men'. Finally, both men were 'tender' towards the Soviet Union – if not that country's political system then certainly its country's apparent successful application of economic planning. Wilson and Snow had a mutual friend, or at least associate, in the distinguished physicist Patrick Blackett., a Nobel Prize winner in 1948 and Head of the Physics Department at IC from 1953-63 – hence the Blackett Laboratory. Blackett was a key influence on Wilson's thinking on science and technology during the 1950s. In the words of Wilson's biographer:-

Blackett joined a group which met at the Reform Club to discuss the formation of a scientific and technological policy for the nation, and for Labour in particular. Membership of the group included a glittering array of leading British scientists... (together with the author) C.P. Snow.... Leading Labour front-benchers – Gaitskell, Callaghan, Robens – sometimes came to meetings. None, however, took as much interest as Wilson (whose) conception of the scientific revolution entailed much more than subsidizing scientists and laboratories: it meant harnessing talent, employing professionals rather than amateurs, promoting on merit, abolishing the old boys' network, educating the ambitious, creating a ladder for people from average backgrounds to climb (Pimlott, 1992, p.274-5).

So when Wilson stood up to give his speech to the Labour Party Conference in Scarborough in October 1963 he had a clear vision for the future. He was also aware that technological changes were occurring which would sweep away much existing technology and prove a potent threat to jobs. As he put it, discerning the emergence of 'advanced manufacturing':-

We have to recognise that automation is not just one more process in the history of mechanisation, if by mechanisation we mean

the application of technology to eliminate the need for human muscle. The essence of modern automation is that it replaces the hitherto unique human functions of memory and of judgement. And now the computers have reached the point where they command facilities of memory beyond the capacity of any human being or group of human beings who have ever lived....In America technological change is beginning to move now even more rapidly in white collar professions than in engineering....let us be clear in America today and Britain tomorrow we face massive redundancies in office work no less than industry. (Wilson, 1964, pp. 16-17).

Wilson then went on to outline a policy for the future based on a new formulation of Socialism based on a combination of science, technological development, education and planning. In many ways what he was offering was an extension of the war-time approach to industry he had experienced as a civil servant, combined with some of the evolutionary ideas of Fabian Socialism. Of course, planning requires control of the economy and, although this was might be possible under conditions of total war, it was to prove impossible in the circumstances of the 1960s. Not least organised labour, in the shape of the trade union movement, were unlikely to lay aside sectional interests for any length of time, particularly in circumstances of rising prices and growing material aspirations. Also, many of the technological changes described by Wilson were more or less certain to be resisted by the unions – in, for example, engineering, ship-building, newspaper printing and the docks. Snow's 'literally intellectuals' had nothing on the British trade unions when it came to Luddism! Equally, business was likely to be deeply suspicious of exhortations from an incoming Labour Government still committed by definition to the 'collective ownership of production, distribution and exchange'. Wilson's immediate response to such doubts

was summed up in the in a single phrase – 'the Britain that is going to be forged in the white heat of this (technological) revolution will be no place for restrictive practices or for outdated methods on either side of industry'. Wilson's speech was a triumph, not merely in terms of uniting his own Party, but also in terms of providing the ideological ammunition to contest the 1964 General Election.

Aftermath

As has been mentioned, Labour won the 1964 election but not with the majority Wilson had expected. Although, in line with his Scarborough vision, he established a Ministry of Technology, appointing Frank Cousins as Minister with a seat in the Cabinet, there were problems from the start. Cousins was placed in an almost impossible position and it is not surprising that he proved incapable of coping with the inherent contradictions confronting him. As the leader of a massive trade union he had real power. As a Cabinet Minister heading up a new Ministry, possessing no parliamentary experience and without any meaningful resources he lacked power and had only limited influence. As his biographer has commented:-

Cousins appointment was greeted by most of the newspapers with scarcely concealed derision, by the Parliamentary Opposition as a Wilsonian gimmick, and by many public voices as, at best, an oddity....When the Ministry of Technology was born on Saturday 17 October 1964 there was nothing but a plan and a prayer. No headquarters, no staff, not even funds.... Having brought Cousins into the Government with tempting, not to say glowing, visions, of what might be achieved, the Prime Minister, finding himself swamped by the magnitude of the economic crisis, allowed his Minister of Technology to steer a lonely and inadequately aided course (Goodman, 1984, pp.402-3).

As the Government grappled with the economic problems deriving from an over-valued pound and the pressures of increasing industrial unrest, Cousins found himself associated with policies which he could not, in all conscience, support. His fundamental belief was in free collective bargaining whereas the Government were moving ever more in the direction of statutory incomes and he ultimately resigned over the issue in July 1966.

Meanwhile, Wilson asked C.P. Snow to join the new Ministry in the role of Cousin's Parliamentary Secretary – a junior ministerial post. Snow agreed, with the caveat that he could only afford a year away from his writing commitments, and accepted a peerage, becoming Lord Snow of Leicester which enabled him to sit in the House of Lords and speak for the government there. According to Pimlott:-

Arriving at No.10 to be offered the post, Snow took out his notebook and said to a civil servant: 'This is marvellous stuff for a novel'. Snow had the virtue of being a keen admirer of the new Prime Minister....But he was approaching sixty, and had never been a politician. The error of giving both jobs in the ideologically key ministry to people who had no experience of the Westminster jungle rapidly became apparent....Snow's appointment was largely a token one, well-meaning if ill-judged. (Pimlott, 1992, p. 328).

Snow eventually resigned from his post in April 1966 to return to his writing. Not surprisingly perhaps his penultimate novel *In Their Wisdom* is largely set in the House of Lords. Harold Wilson won the 1966 General Election with an increased majority, lost the election of 1970 but returned to win two elections in 1974 before finally resigning as Prime Minister in 1976. In a recent book Nicholas Comfort summed up the Wilson era as follows:-

Wilson's commitment to a Britain forged

in the white heat of technology was music to the ears of scientists and managers who, while conscious that British industry and technology no longer claimed global primacy, remained confident that the country had the economic and intellectual resource base – and the products – to compete. On the face of it good times lay ahead. Other indicators were telling a different story....Handicapped by an overvalued currency, Britain was losing ground in export markets: between 1962 and 1966 the country's share of world manufactured exports fell...from 16.2% to 12.2%....The fifteen years that followed would see three changes of government – two of them precipitated by industrial unrest - the devaluation of sterling, the nationalisation of industries by Labour and Conservatives alike, rocketing inflation and unemployment, an upsurge of shop floor militancy, increasing penetration of British markets by more efficient and enterprising competitors....From all of this, British industry came out demonstrably weaker, with employment in manufacturing by 1979 down to 6.16, half what it had been in 1952....And to Whitehall, the 'white heat of technology' had given way to 'the management of decline' (Comfort, 2012, pp. 56-7).

Snow and Wilson had in their different ways diagnosed aspects of the 'British disease'. Unfortunately, however, they were nowhere near to finding a cure!

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