'Two Cultures' Revisited

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> *Vanity of Science* Knowledge of physical science will not console me for ignorance of morality in time of affliction, but knowledge of morality will always console me for ignorance of physical science.
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> (Pascal, Pensées, No. 23)

Pascal's pensée is calculated to irritate leader-writers, politicians and curriculum theorists, among whom there is almost universal agreement that knowledge of physical science is a key component of any suitably modern education. This consensus is routinely signalled by a reference to 'the two cultures', a phrase that has by now become the inevitable cliché whenever anyone wants to deplore ignorance of physical science either among humanists or among the population at large, or, more rarely, whenever someone wants to point to philistinism among scientists.

A first reaction to the second of these matters might be to observe that philistinism is not confined to scientists; if the experience of no-doubt jaundiced academics can be trusted, it is alive and well among young people. Even more striking, one might, in looking at university literature departments and the fine art world, point to rampant philistinism within the professional heart of the humanities. In any case, while Matthew Arnold might have raised discussion of some topics related to our theme in terms of philistinism, philistinism was certainly not a category used by Pascal to interpret the world. Nor, I think, would it have commended itself to Dr Leavis in his now infamous, but today largely misunderstood wrangle with C. P. Snow over the 'two cultures'. How, though, can a controversy be both infamous, cliché-generating and largely misunderstood? Easily, one surmises, given that even at the time few seemed to understand clearly what was at stake, and given that this obfuscation of issues extended to the principals themselves, as well as to contemporaneous by-standers and commentators.

Even today, at a distance of more than a quarter of a century, one can read Snow's original lecture[1] and Leavis's impassioned battery of response[2] and still fail to see the wood for the trees.

[1] 'The Two Cultures and the Scientific Revolution' Rede Lecture (1959).

[2] Collected in *Nor Shall My Sword* (London: Chatto and Windus, 1972).

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There can be little doubt that at one level, Leavis was outrageous. Snow's lecture was certainly irritating, even at times silly, in ways we will come to. Nevertheless, what he was actually proposing was largely inoffensive, largely platitudinous in fact—which is probably why it has been so warmly embraced by leader-writers, politicians and curriculum theorists, as well as sixth-form masters preparing their pupils for Cambridge entrance exams (something which particularly got under Leavis's skin). What we have in *Nor Shall My Sword*, splendid invective though it is, is very much a case of the full weight of the Leavisian artillery being unleashed on a small and slender, but, as it has turned out, remarkably resilient blade of common grass. What Snow said in his original lecture was that while it was a pity that so few scientists read literature, it was also equally to be deplored that so few humanists knew any science. He urged that education should remedy the divide between what he called the 'two cultures', and begin to produce what would nowadays be called scientifically literate humanists and (I suppose) plain literate scientists. Actually, in his initial reply ('Two Cultures'), Leavis concurs with Snow over the need for improvements in scientific education, and also in regretting the existence of 'two' cultures, dividing, so it seems, the educated sections of the country into two mutually uncomprehending classes. Although Leavis is particularly scathing about Snow's talk of *two* cultures, it is not as if Snow thought cultural duality a good thing: he actually saw himself as advocating its eradication. But, from Leavis's point of view, while Snow's professed concern here is justified, his concern—or at least the way in which he conceives his concern—is not enough, 'disastrously not enough'.

In fact, despite an ostensible even-handedness about science and the arts, and their role in education, Snow in his sub-text is far from being even-handed. He does not confine himself to pointing out the material advances made by science and technology over the past two centuries or so, or to advocating better or more specialist technical education; If he had, there could have been little cause for complaint, even from Leavis. But as Nöel Annan put it,[3] Snow was determined to 'strike a blow for science and put the narrow humanists in their place'. Whereas scientists and technologists are hard at work improving material conditions, representatives of what Snow calls 'traditional culture' are 'natural Luddites'. Whereas our natural human condition is one of horror and individual tragedy, we do have social hope, hope largely, it seems, in the matter of providing for the masses more jam tomorrow:

[3] *Our Age* (London: Fontana, 1991), p. 383.

> common men can show extraordinary fortitude in chasing jam tomorrow. Jam today, and men aren't at their most exciting; jam tomorrow, and one often sees them at their noblest.

—a nobility made possible only by the transformations wrought by 'the' scientific culture. If we don't take these scientific and technological transformations in our stride, it makes us 'look silly'—a dig, doubtless, at the literateurs who are unable to recite the second law of thermodynamics or who fail to recognize that Rutherford is what Snow styled the Shakespeare of science. But, in Snow's book, literary culture is not just silly and/or irrelevant. Whereas 'statistically' slightly more scientists are religious unbelievers compared with the rest of the intellectual world, 'nine out of ten of those who dominated literary sensibility (like Yeats or Pound) were not only politically silly but politically wicked'.

The tone of Snow's lecture, the crassness of his judgments and his button-holing man-of-the-world insensitivity all enraged Leavis. For Leavis, Snow is not just ignorant, he is portentously ignorant; that is, 'he is a portent in that, being in himself negligible, he has become for a vast public on both sides of the Atlantic a master-mind and a sage'. Leaving aside this and other invective (non-entity, intellectual nullity, banality, ineffable blankness, embarrassing vulgarity, as undistinguished as it is possible to be), what Leavis thinks is that Snow is simply a reflection of the received wisdom of his time ('he has been created as authoritative intellect by the cultural conditions manifested in his acceptance'). This impression time has done little to dispel. Yet, if there is anything in the debate beyond invective (on both sides, it must be said, for Leavis's own entry into the area had been provoked by Snow's initial over-statements and answered in intemperate terms by at least some of Snow's defenders), we must be clear what it is. Once again, an initial glance may produce bafflement, not least because of the many striking similarities between the two protagonists, both provincial grammar-school boys, both eventually anti-modernist on art, both élitists on education, both anti-religious, and both broadly on the left in open politics.

However, despite everything so far said, there is a point of real significance which underlies the Two Cultures Debate, and which continues to be missed by most of those who consider the matter or refer to it. To bring this out, we could do far worse that point to one of Leavis's apparently more surprising remarks:

> I don't believe in any 'literary values', and you won't find me talking about them: the judgments the literary critic is concerned with are judgments about life. What the critical

discipline is concerned with is relevance and precision in making and developing them.[4]

Leavis was, as has often been pointed out, a moralist and not an aesthete about literature (which is why his attack on Snow would be ill-represented by calling it an attack on philistinism). And, whatever we think about the efficacy of the average literary critic in developing judgments about life, an education in science will fail to address the relevant issues. The reason for this is in no way a criticism of science *per se*; indeed, it stems from science's very strength, what is sometimes, but perhaps unhelpfully described as science's value-freedom.

It is important, though, to be clear about what might sensibly be meant by speaking of science as value-free. What is meant is not (or should not be) a denial of the fact that science is a matter of human interest, or that values of various sorts are involved in taking part in scientific work and in choosing the focus of that work. These include what might be seen as values external to the scientific enterprise itself, such as the particular desires which motivate individual scientists and the ends chosen by those directing and funding research, but we should not forget the internal values generated by scientific work of any description. These will include the need to solve a particular problem thrown up in the course of research, or the need to produce results replicable by fellow-scientists, or the need to produce theories which survive empirical testing. What is right about thinking of science as value-free derives from the subject matter and the methods of science. The subject matter of science is the description, analysis and explanation of natural processes, as they are caused and brought about by other natural processes according to natural laws and regularities. The methods of science involve the observation and measurement of phenomena by any competent, suitably placed observers, whatever their beliefs, motives or cultural backgrounds, and the rigorous testing of theories against such observations and measurements, again by any scientist or scientists, regardless of ideology or background. The widely canvassed notion of science as presenting an absolute view of the world, or, alternatively, as a view from nowhere, represents an ideal unattainable by human observers, limited as we are by our concepts and sensory apparatus. Nevertheless, there is something right about it in so far as in science the attempt is made to chart the course of nature (or of various facets of nature) as it goes on independently of human interest, however close to our interests the investigation of some facet of

[4] *Nor Shall My Sword*, p. 97.

nature might be. Thus, for example, things very important to us, including colour, sound and taste, are relegated by science to the status of secondary quality, causally and scientifically irrelevant to the fundamental processes of nature. The picture modern science presents of the world is of a humanly unrecognizable world, one in which not only secondary qualities are removed, but in which the familiar objects of everyday use and appearance become lattices of particles, fuzzy at the edges and occupied largely by empty space. We are familiar with this effect from Eddington's famous discussion of the two tables, but the start of a similar process of scientific kenosis of human meaning is well described by Proust:

> the town that I saw before me had ceased to be Venice. Its personality, its name, seemed to be lying fictions which I no longer had the courage to impress upon its stones. I saw the palaces reduced to their constituent parts, lifeless heaps of marble with nothing to chose between them, and the water as a combination of hydrogen and oxygen, external, blind, anterior and exterior to Venice, unconscious of Doges or of Turner.[5]

Proust is writing of the sense of depersonalization which came over him as part of his remorse for allowing a piece of selfish cruelty to his mother. But a dispassionate scientific account of Venice would know no more of its human meaning than did Proust in his neurasthenic state. In a scientific account, water does indeed become hydrogen and oxygen, palaces complexes of molecules, the very name 'Venice' a fiction, and Doges and Turner and their works but insignificant moments in the natural history of but one short-lived species, of no more interest or value than any other moment or moments.

To put all this another way, science aims at an observer-independent account of the world, transcending human meaning, culture and ideology. Its success derives from its success in approximating to this aim, for it is in so far as we go beyond looking at the natural world in terms of its first meanings for us that we are able to penetrate further its causally essential core, and so become rather more adept at manipulating and directing it than those who remain at the level of first impassions. The lesson of post-Galilean science is that there is no reason to suppose that the effects and processes we identify in our first transactions with nature will turn out to be those which are fundamental from a causal point of view.

What all this amounts to is that science has come to abstract from many of the properties which are of importance to us in our

[5] Marcel Proust, *Remembrance of Things Past*, vol. XI, trans. C. K. Scott Moncrieff (London: Chatto and Windus, 1969), p. 320.

everyday lives. Even more, it teaches us to look at the world in a way which prescinds from its value for us. We look at it as it is in itself, according to its causal determination and structure, and not at how it affects us or how we might like it to be. Even where, as in medicine, say, or in some technological application, we are dealing with matters of direct value to us, and precisely because of their value to us, in science and in technology we take a detached view in order to establish just what the processes of nature are. In science, we decentre from the meaning and value the world has for us; it is in that sense that science is value-free, and it is precisely for that reason that science cannot constitute a culture, or even half a culture. In the explanations and descriptions given by science, the terms in which discussions of value are framed are rigorously excluded, as well as many of the predicates signalling the manner in which we feel attraction or repulsion to the world, and in terms of which our normal human concerns and interests are expressed and conceived.

If 'culture' refers to the context in which parts of the world are singled out as having meaning and value for us and the background of evaluative agreement against which particular judgments of value are made, then it becomes clear that there certainly can be human cultures which contain no science in our modern sense. There have been many cultures in which there has been no systematic attempt to get behind empirical appearance and to remove oneself, if only for a time, from considerations of value. It would be wrong to think that in such cultures it has been impossible to lead a fully human life, and it would certainly need argument to show that modern western culture represents progress in domains outside the scientific and technological, or indeed to show that even within our culture scientific and technological as it is, a perfectly good life could not be lived in more or less blissful ignorance of the details of modern science, which, I take it, is Pascal's point. Moreover, even though in our history and culture science plays an important role, and we certainly need some people well up in science, science itself cannot make judgments of value (what Leavis used to call 'judgments about life'); further, many of the explanations and concepts of science occlude or simply by-pass the considerations which are relevant to life as lived.

It is of course, true that an exclusive concentration on scientific modes of thought can affect the way in which judgments of value are made. In particular, it can lead to an importation of quantitative considerations, and a tendency to see social and moral problems in terms of hygiene and environmental manipulation. Leavis's hostility to Snow was partly due to the fact that he

discovered such tendencies in Snow. But to treat the Two Cultures Debate as being mainly about an old-fashioned moralism objecting to what Leavis called technologico-Benthamism (and for which he himself was in his term dubbed Luddite) is to miss the fundamental point. This point is that culture is concerned with the living of life as a whole, and that science, quite properly, prescinds from the terms in which concerns relevant to that can be discussed or even raised. If, as Leavis implies, a non-literary education may fail to advance relevance and precision in this area, this is not so much because scientists have the wrong values as because science in itself does not address questions of value at all. (It is striking that Leavis, just as much as Snow, is unprepared to look to religion as a source of the required relevance and precision. We could in a way see the whole dispute as one in which each party turns to his own favoured discipline to supply the gap left by the passing of religion, another point at which the two are rather closer than either would have wanted to admit.)

What, though, is culture? Whence are what I am calling cultural judgments derived, and how are they to be justified? A striking feature of what I am calling culture is that, historically, cultures have been embedded in specific and local traditions. Unlike modern science, which just because it aims at universally acceptable, observer-independent theories, transcends particular religions, ideologies, and races, culture by contrast is particular, and has been recognized to be so since the time of Vico (1668–1744).

It is here, of course, that we encounter theories of *Verstehen*, that is the idea that when we study a culture, part of what we should be asking is what it feels like to be a member of that culture and what it is to share in its traditions, history and commonality. The implied contrast here is once more a contrast with natural science. In speaking about the behaviour of atoms or genes, say, we are not asking what it is like to be an atom or a gene, if only because it is not like anything to be an atom or a gene, nor do we have to enquire into the tradition or culture of particular groups of atoms or genes, for groups of atoms or genes do not have traditions or cultures marking them off from other atoms or genes. And for most philosophers of science a complete account of atomic or genetic behaviour will have been given when we are able objectively to predict the behaviour in question, given initial conditions and the relevant laws. Understanding human behaviour demands both more and less. It involves less because it does not require more than very general predictability or general laws. Indeed, and this is a key point of difference, locating an agent's motives and self-understanding within a specific tradition or culture tells us the

terms in which he will conceive his actions, but not what actions he will do. Understanding human behaviour, on the other hand, requires more than predictions of behaviour because understanding an action will always involve reference to an agent's reasons, and, implicitly, given the value-ladenness of the notion of reason, reference to values, those of both agent and observer. But, it will be said, we can know nothing of an agent's reasons without some grasp of his cultural background, and of what it might feel like to be an agent in that sort of society. And so we return to the particularity of culture, and of cultural understanding. In contrast, scientific understanding is general and impervious to the changes and contingencies of human history (that is, the behaviour of atoms and even genes follows laws which, if valid, are true for the whole of space and time).

The idea that human conduct and the norms underlying it are intimately affected by history and by the development of culture runs counter to the tenets of the European enlightenment. The enlightenment, strongly influenced be it noted by scientific modes of thinking and by a progressivist attitude to human history, took human nature to be as invariant and unchanging as a carbon atom or a molecule of water. It also believed that there was one rational standard—that, roughly, of the eighteenth century liberal-cum-sceptical intellectual—to which all mankind could and should aspire. Informed by a rationalistic, scientific picture of the world, and by a similarly enlightened reading of human history, the prejudices and rivalries which caused hatred, fanaticism and factionalism could be eliminated. As Diderot put it, the ideal is a

> philosopher who, trampling underfoot prejudice, tradition, venerability, universal assent, authority—in a word, everything that overawes the crowd—dares to think for himself, to ascend to the clearest general principles, to examine them, to discuss them, to admit nothing save on the testimony of his own reason and experience.[6]

The assumption is that having done all this, genuinely independent thinkers will converge on a universal rationality. In matters of conduct, enlightenment thinking tended to stress the goals of self-preservation and pleasure-seeking which the new moral sciences were allegedly revealing as the mainsprings of human action. Once we were freed from the obfuscations and repressions of religion and the old order, and allowed innocently to seek pleasure and self-preservation, we would also be able to act with rational benevolence to our fellow-men. Rationality regarding our own nature

[6] In his article on Eclecticism in the *Encyclopaedia*, quoted in Arthur M. Wilson, *Diderot* (Oxford University Press, 1972), p. 237.

and desires would reveal a harmony between our own ends and those of others. And, accustomed by science to the disengaged scrutiny of nature, we would similarly be induced to transcend egoism in our own behaviour.

In a sense some of these ideals were put to the test in the French Revolution: at least some of the revolutionaries conceived themselves as attempting to harmonize interests by means of universal rationality unfettered by old prejudice and authority, which, it was held, militated against such painless harmonization. The Russian Revolution, too, is a classic case of an attempt to reform men by remoulding society on rational principles. Both these instances, and others one can think of, certainly highlight the pitfalls of rationalism in politics. But a more telling, because more fundamental, objection to the enlightenment view of human nature is given by those who, like Vico, stressed the effect on human beings of their cultural and historical background. With characteristic force and hyperbole the basic point is put by de Maistre:

> In the course of my life, I have seen Frenchmen, Italians, Russians. ... I know, too, thanks to Montesquieu, that one can be a Persian. But as for man, I declare that I have never met him in my life; if he exists, he is unknown to me.[7]

Being rooted is not simply the condition of man's existence and identity, it is also the basis of a calm and fulfilled human life:

> All known nations have been happy or powerful to the degree they have faithfully obeyed (the) national mind, which is nothing other than the destruction of individual dogmas and the absolute and general rule of national dogmas, that is to say, useful prejudices.[8]

Prejudice is a good because it binds communities and nations together and gives otherwise rudderless human beings a sense of purpose and direction. This is more than Burke's notion of prejudice as the deposit of long experience and wisdom, or than Hume's test of time, or even than Chesterton's plea that in our search for instant solutions to our problems we do not disenfranchise the dead, though de Maistre would certainly not have dissented from any of these sentiments. It is rather the idea that a community, or anything approaching a community, must be firmly embedded in a cocoon of all-embracing and unquestioned thought and feeling, a thought expressed around the same time by Herder:

[7] J. de Maistre, *Oeuvres Complètes*, 14 vols. (Lyons: Vitte, 1884–1887), vol. I, p. 74.

[8] Ibid. p. 376.

> Prejudice is good in its time and place, because it makes people happy. It takes them back to their centre, attaches them firmly to their roots, lets them flourish in their own way, makes them more impassioned, and, as a result, happier in their inclinations and purposes. The most ignorant nation, the one with the most prejudices, is often superior in this respect. When people dream of emigrating to foreign lands to seek hope and salvation, they reveal the first symptoms of sickness and flatulence, of approaching death.[9]

Herder's motivation may seem entirely praiseworthy: a desire to defend the primitive and the rural and the communal against the hubris of the urban sophisticate. It is hard not to see his words as an anticipation of Nietzsche's ideas about the centrality of myth to a strong people, and of the impact of Socratic rationality as a type of sickly internal emigration loosening the bonds of allegiance to common values and myths which hold a community together. And it is hard not to see his whole stance through the prism of rather darker nineteenth and particularly twentieth century interpretations of culture and nation.

Our recent reflections on culture have begun to take us into deep, if not murky, waters. We began by looking at the differences between scientific theories and the terms in which discussions of value are framed. In particular, in scientific theories, abstraction is made from ethical and evaluative considerations, and often even from the properties and predicates on which such evaluations focus. If by 'culture' is meant the context in which what Leavis calls judgments about life can be made, then science can be at most one specific element of culture as a whole. Science will in various ways inform discussions of value, by, for example, outlining what it is possible to do, or by explaining some of the causal background to specific human capacities or tendencies. But it cannot in itself provide justifications for evaluations or decisions, even including the decision to engage in science itself. The fact, if it is a fact, that the reductive and quantitative approaches characteristic of modern science have entered so much of our political and moral thinking does not show that science itself is forcing our mind-sets in that way, or that being a faithful scientist implies that one is bound to do this. What it shows is that a particular culture has begun to move in a Benthamite direction, and critics would say, has begun

[9] J. G. Herder, 'Yet Another Philosophy of History Concerning the Development of Mankind', quoted in *J. G. Herder on Social and Political Culture*, ed. F. M. Barnard (Cambridge University Press, 1969) pp. 186–187.