

Wittgenstein, Science and the Social Sciences



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Introduction

The social sciences – perhaps even the very idea of social science – are experiencing something of a crisis. On the one hand, there is a considerable degree of scepticism, bordering on outright hostility, towards them on the part of governments and governmental funding bodies. In the USA, for example, the National Science Foundation is now prevented by the House of Representatives, following a vote in May 2012, from funding research in political science. In the USA, again, the establishment of the ‘What Works Clearinghouse’ and the idea that education research in particular must be ‘evidence-based’ marginalises theoretical research, especially that with a sociological or philosophical basis, since ‘what works’ and what counts as ‘evidence’ are construed on the model of medical research, with randomised control trials as the ‘gold standard’ and the supremacy of purely or predominantly empirical research taken for granted (Cartwright and Hardie 2012). In the UK, it is now over 30 years since the Social Science Research Council became the Economic and Social Science Research Council when the Secretary of State for Education at the time, Sir Keith Joseph, decreed that the word ‘science’ was ‘misleading for a subject that cannot provide testable answers’. This appears to have masked his view that the social sciences were “packed with people committed to the left in British politics” who disagreed with his own ideas on, for example, the cycle of deprivation (Denham and Garnett 2001, 379–80).

Perhaps this hostility to the social sciences is partly caused by what some identify as the increasing unwillingness of social scientists – still so called, naturally – to be compared with the model of the natural scientists. (Of course it might be the other way round: perhaps it is the hostility which their discipline encounters that

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induces social scientists to repudiate the comparison with natural science.) Fay (1996 p. 1), in rejecting the comparison, writes that the question of how far social science is or should be like natural science has become less interesting today, partly because for many people

natural science no longer induces the kind of reverence it once did. Implicit in much previous philosophizing about social inquiry was the presupposition that natural science is the benchmark against which all cognitive endeavors must be measured. But in the current intellectual climate natural science has lost this privileged position.

It has lost that position, Fay thinks, because we live in an age of growing repugnance towards the military-industrial complex and the degradation of the environment and of scepticism concerning the benefits of technology, and accordingly increasing wariness of the science that underpins them.

At the same time, and perhaps at least partly as a further response to the kind of pressure noted above, many researchers and writers who identify themselves as social scientists still appear more than happy to see social science model itself on the approaches and procedures of the physical sciences. Thus there is much interest in ‘big data’, that is massive data sets that can be analysed by computer to expose patterns, trends and correlations, for instance, between social disadvantage and low education attainment, in ‘learning analytics’, the application of data (which may well be ‘big’) in order to maximise learning, in randomised control trials (RCTs) along the lines of their successful use in medicine and in neuroscience. This is not the place to offer detailed critique of these trends: for randomised control trials see Cartwright and Hardie (2012) whilst for neuroscience see Schrag (2011) and Smeyers (2016).

In this chapter, I note some of the ways in which Wittgenstein in his later and arguably more influential writing is astute (albeit sometimes cryptically) about the fundamental confusions at the heart of many elements of the ‘scientific turn’ that had captivated him in his earlier work and offers us well-judged ways of dissolving the pseudo-scientific myths that enthral and mislead many who regard themselves as members of the social science community. He is exceptionally and, it is sometimes tempting to say, uniquely helpful to us as we resist scientism, that is *faith* in science and excessive respect for science – particularly the expectation that every question is susceptible to scientific solutions and that scientific knowledge should be taken as the model for all knowledge. This of course is not to reject or even to denigrate science itself, though Wittgenstein, who was knowledgeable about science, having trained as an engineer and having worked as an aeronautical scientist in Manchester and elsewhere, often expresses extreme hostility to science in his later writings:

It isn’t absurd, eg, to believe that the age of science and technology is the beginning of the end for humanity; that the idea of great progress is a delusion, along with the idea that the truth will ultimately be known; that there is nothing good or desirable about scientific knowledge and mankind, in seeking it, is falling into a trap. (*Culture and Value*, p. 56)

It is usual to connect this with Wittgenstein’s feelings about the way science and technology had contributed to the horrors of two world wars (he had witnessed these

with his own eyes as a front-line soldier from 1914 to 1918), especially through the development of the atomic bomb, and with his apocalyptic phrase ‘the darkness of this time’ in his Preface to the *Philosophical Investigations*. A deeper scepticism however is evident in such remarks as the following, also from *Culture and Value* (p. 40):

What a curious attitude scientists have –: ‘We still don’t know that; but it is knowable and it is only a matter of time before we get to know it!’ As if that went without saying. –

This is a telling example of the naïve scientism that Wittgenstein would have us guard against.

It is important to note that both the scientism against which Wittgenstein reacts in his later work and what we might call scientism now have long roots. The word ‘science’ to designate the kind of unified field of knowledge and research that we are familiar with today was not widely used until well into the nineteenth century. Until then it was called ‘natural philosophy’, and Wittgenstein’s philosophical predecessors, as we would now think of them, were absorbed by mathematics and geometry more than by the empirical approaches that come to mind when we think of science in our own time. Descartes, for instance, records in his *Discourse on Method* that geometry strikes him as the most rigorous form of ‘obtaining clarity in any subject’, and published an appendix to the *Discourse* in 1637 called *La Géométrie*. His invention of a systematic way of linking Euclidean geometry with algebra still bears his name as the system of Cartesian co-ordinates. Spinoza resolved to write his own philosophical treatise *more geometrico*, in the manner of geometry. Gottlieb (2016, p. 138) writes that “falling in love with geometry seems almost to have been an occupational hazard of seventeenth-century philosophy”: that love affair, as we shall see, continued well into the twentieth century.

Scientism in Educational Research

Here is an extended example of how educational researchers often assume that their work must conform to scientific criteria for truth and accuracy. Many studies appear to show a correlation between parental involvement in their child’s schooling and the educational standards that the child achieves. Parental involvement is, in short, a good thing. But correlation is one thing and causation another. Can we say that parental involvement *causes* better results – which will naturally have to be in the quantifiable form of higher marks in tests and exams? One problem here is that the various studies do not enable us to say just what kind of parental involvement is effective. Is it, for instance, a matter of the parent or parents ensuring that the child does her homework? Is it instead a matter of the parent(s) listening to the child read aloud, or of the parent(s) reading to her? If so, at what stage in the child’s development? Furthermore might there be a difference between on the one hand reading aloud somewhat mechanically, stabbing the finger at successive words in the text, so that the child knows she is supposed to be learning something here, and on the

other reading with a sense that the book – including its pictures – is meant to be relished and enjoyed? (We moved our older son to a different school when we discovered that the teacher required him to cover up the pictures on the left-hand page: using these as clues to the text opposite was, she said, ‘cheating’.) Is it important that the involved parent asks ‘What did you do at school today?’ or is it more important to be punctilious in attending parents’ evenings at the school? Or do we want to say in the end that it all comes down to the general truth that children need to see that their parents think education is valuable and to be taken seriously (but not necessarily solemnly)? Even asking a child what she did at school today can surely be counter-productive if it feels to the child like an inquisition to which they will be bound not to have the correct answer. (Children often reply to this question by saying what they had for lunch: perhaps because it is at least a definite and incontrovertible answer.)

The existence of all these variables and complexities means that we are a long way from being able to assert that parental involvement *causes* better results, in the form of better grades or anything else. To repeat: correlation, however regular, even if we can find it, does not demonstrate causation. There is a pleasingly old-fashioned example of this point often used by philosophers of science. A factory hooter sounds at 5.00 every evening at a factory in Glasgow, and all round the country workers promptly leave their factories at the same moment. This happens, let us suppose, from Monday to Friday every week apart from national holidays. Still the Glasgow hooter has not *caused* workers to clock off in Birmingham, Bristol and Newcastle.

To search for causes in the social sciences is problematic, then, if a properly causal connection is taken to mean, at least, that an intervention x will always be followed by an outcome y , and *as a result* of x . Yet, some researchers find it a matter of regret that social science has not come up with causal connections of this sort (not yet, perhaps they will say, it is only a matter of time before we get to know it!), and so they continue their search for the chimaera. Even the physical sciences, we should note, do not always work with the kind of idea of causation these social scientists are hoping to discover. Dissolving magnesium in sulphuric acid certainly causes, in the sense required, the production of hydrogen gas, but the same is not always true in medical science. Your doctor may be confident that your insomnia is caused by stress, but she does not suppose that stress always causes insomnia. The same is true of smoking and lung cancer. Not all smokers, not even those who smoke heavily for many years, contract lung cancer. But we hardly want to stop claiming that smoking causes lung cancer – that is, unless we work for the tobacco industry, which has for a long time fallen back on the fact that smoking does not fit the magnesium in sulphuric acid model of causation. Yet we hardly want to make a concession here – to the tobacco industry or the determined smoker – and say merely that there is a significant connection between smoking and contracting lung cancer. That does not seem sufficient here. Cigarette packets in the UK are now required by law to carry the unequivocal message: Smoking Kills. Similarly, there are signs on UK motorways that say Tiredness Kills. As with the case of smoking, the implicit causal connection between driving when you are tired and being involved in a fatal accident is not disconfirmed by the fact that large numbers of

people drive when they are tired without disastrous results. Only ‘the bewitchment of our intelligence by means of language’ (*Philosophical Investigations* §109), here the language of science, persuades us to stop thinking in causal terms in this case or in the case of smoking and lung cancer. The messages on the cigarette packets and the motorways are well conceived, implying causation in an ordinary, everyday sense of the word.

To emphasise this point, putting it in slightly different way: we can and do talk about causation when it does not conform to any supposedly scientific paradigm. As Nancy Cartwright (1997 p. 104) writes: “About causation I argue...there is a great variety of different kinds of causes and even causes of the same kind can operate in different ways”. She goes on to note that:

The term ‘cause’ is highly unspecific. It commits us to nothing about the kind of causality involved nor about how the causes operate. Recognizing this should make us more cautious about investing in the quest for universal methods for causal inference. (ibid. p. 105).

The prime candidate for such a ‘universal’ method of causal inference would naturally be a putatively ‘scientific’ one. It is worth noting that Cartwright’s criticism applies even to what has become a very popular such candidate: the INUS account of causation, associated particularly with J. L. Mackie, according to which an event C is perceived to be the cause of event E if C is “an insufficient but necessary (or non-redundant) part of a condition which is itself unnecessary but sufficient for the result” (Mackie 1974 p. 62). There is no space here to do justice to the problems that have been found with the INUS account. For a clear overview, which is particularly insightful about the importance of “the background of knowledge that is taken for granted” and the crucial role of blame in attributing causality, see Meyer 2000 (pp. 13 ff.). Cartwright (2007 pp. 34–35) simply notes “INUS conditions are not causes. The INUS formula represents an association of features, a correlation, and we know that correlations may well be spurious”.

The ‘Scientific’ Wittgenstein

It is important to note that Wittgenstein’s attitude to science, which can be characterised as a growing sense of how science is prominent amongst the pictures that hold us captive (*Philosophical Investigations* §115), is connected to many of his central concerns in his philosophical writing throughout his life. In the early *Tractatus Logico-Philosophicus* (1922), it is fair to say that Wittgenstein himself was ‘captured’ by scientific models and ideas that were making a major impact at the time. Albert Einstein did important work in atomic theory in the early years of the twentieth century, culminating in the publication of his ‘General Theory of Relativity’ in 1916. J.J Thomson was awarded the Nobel Prize in 1906 for his work in identifying subatomic particles in cathode rays. Ernest Rutherford, Niels Bohr and Gilbert Lewis made important discoveries about the structure of atoms between 1909 and 1916; Rutherford famously ‘split the atom’ in 1919. It should not be too

surprising that a trained scientist and engineer such as Wittgenstein, who had been fascinated by the philosophy of mathematics and corresponded with Gottlob Frege, perhaps the most eminent thinker in this field at the time, should be influenced by scientific and mathematical ‘pictures’. Essentially, the *Tractatus* is a work of logical analysis dedicated to discovering elementary propositions, understood as the basic building blocks of language. This is usually called his ‘picture theory’ of meaning since it conceives propositions as meaningful insofar as they picture states of affairs or empirical facts. Because those elementary propositions are analogous to the place of atoms in the world that the physical sciences investigate, Wittgenstein’s theory in the *Tractatus* is often described as logical atomism. Wittgenstein did not use this phrase himself but the word *Sachverhalte* which he uses in the *Tractatus* and is usually translated as ‘states of affairs’ is translated by some as ‘atomic facts’ (Hunnings 1988). Furthermore, Bertrand Russell, who was a major influence on Wittgenstein and acknowledged the influence Wittgenstein had on him in turn, was happy to call himself a logical atomist (Klement 2004).

Wittgenstein’s own title for the *Tractatus* was *Logisch-philosophische Abhandlung* (literally *Logical-Philosophical Treatise*). He adopted the Latin title for the English translation on the suggestion of the philosopher G.E. Moore. It is sometimes said that Moore was struck by the Spinozian flavour of the last part of the *Tractatus*, and Spinoza’s great work of moral philosophy had been titled *Tractatus Theologico-Politicus* (Moore had published his own work on moral philosophy in 1903 as *Principia Ethica*). It is significant too that Spinoza had conceived his philosophy as proceeding *more geometrico*, in the manner of geometry, just as Descartes had taken mathematics and geometry as the model for how to deal with the ambiguities and uncertainties of philosophy. Perhaps in the Latin title of the *Tractatus*, there is also an allusion to Whitehead’s and Russell’s *Principia Mathematica*, published in 1910, which itself pays homage to Isaac Newton’s *Philosophiæ Naturalis Principia Mathematica* (‘The mathematical principles of natural science’, what we now call ‘science’ being known as ‘natural philosophy’ in Newton’s time.). At any rate, the early Wittgenstein was not the only philosopher to be held captive by the ‘picture’ of science. And when he writes later in the *Philosophical Investigations* that “a picture held us captive” (§115), then, it is the ‘scientific’ picture – science here including geometry and mathematics – that he has in mind, and it is he himself, he confesses, that was held captive by it.

The picture that captivates Wittgenstein in the *Tractatus* extends beyond its title and beyond the nature of the theory that he expounds there to the way in which he presents it (if indeed these two sides of a text can ever be entirely separate). Commenting on the literary style of the work, Muñoz-Suárez (2016) notes that Wittgenstein had trained as an engineer and comments that.

Perhaps this explains why the *Tractatus* looks like the work of a sort of conceptual engineer. In it, Wittgenstein describes reality as an immense device whose pieces perform together, giving rise at different levels to different configurations and abstractions, among them language and thought. Like cogs in a machine, all the aphorisms in the *Tractatus* serve an overall aim.

The *Tractatus* has a literary style that is variously described as austere, succinct, extremely concise, “formidably compressed” (Monk 1991, p. 156), cryptic and highly abstract. There is an “almost total absence of arguments proper, in the usual sense of the word, not to mention the absence of examples which would be useful in coming to the aid of the reader” (Frascolla 1994). Instead of arguments, there are statements that are intended to be axiomatic or self-evident. As is familiar to anyone who has opened the book, the statements are numbered (e.g. 1, 1.1, 1.11, 1.12 and 4.1272, 4.12721, 4.1273) in a hierarchy such that every lower level proposition expands on or comments on the proposition directly above it in the hierarchy. Wittgenstein makes copious use of logical notation and truth-tables, which unfortunately I cannot reproduce here. The style of the book is less reminiscent of Spinoza’s *Tractatus Theologico-Politicus* than of Euclid’s *Elements of Geometry*. Here, just as Wittgenstein sets out in his *Tractatus* basic axioms whose truth is intended to be self-evident, so Euclid sets out at the beginning of Book 1 of the *Elements* what he calls ‘Definitions’, ‘Postulates’ and ‘Common Notions’. Here are a few of the ‘Definitions’:

7. A plane surface is (any) one which lies evenly with the straight-lines on itself.
8. And a plane angle is the inclination of the lines to one another, when two lines in a plane meet one another, and are not lying in a straight-line.
9. And when the lines containing the angle are straight then the angle is called rectilinear.
10. And when a straight-line stood upon (another) straight-line makes adjacent angles (which are) equal to one another, each of the equal angles is a right-angle, and the former straight-line is called a perpendicular to that upon which it stands.

The reader, whatever her understanding or lack of it of the technicalities in the *Tractatus* – and it must be said that the fact that few readers will be able to follow all of the logical technicalities is no criticism of Wittgenstein – is left in no doubt that something dauntingly and compellingly rigorous – ‘scientific’ in the popular sense of the word – is going on in the *book*.

Wittgenstein’s Turn Away from Science

Wittgenstein’s later repudiation of the scientific ‘picture’ is accompanied, as that earlier ‘picture’ was, by a theory of language and meaning, but now a very different one. In the *Philosophical Investigations*, he writes that it is a mistake to look for a perfect language, pure and crystalline like the language of logic and science. Now he abandons his aspiration to find one, ideal kind of language to which all language should conform. He is more impressed by what he calls “the multiplicity of language-games ... the multiplicity of the tools in language and of the ways they are used, the multiplicity of kinds of word and sentence” (*Philosophical Investigations* §23). The early pages of the *PI* have much to say about this. Wittgenstein offers a

list, including ‘Singing catches—Guessing riddles—Making a joke; telling it—Solving a problem in practical arithmetic—Translating from one language into another—Asking, thanking, cursing, greeting, praying’. In the next paragraph, he warns us that if we do not keep the multiplicity of language-games in view, we will perhaps ‘be inclined to ask questions like: “What is a question?”’ or, we might say, questions like ‘what is a cause?’, in expectation that there is a paradigm to be discovered, no doubt derived from what is currently a high-status language-game, that of science.

In a well-known summary of his new view of language, Wittgenstein writes:

every sentence in our language is in order as it is. That is to say, we are not *striving after* an ideal, as if our ordinary vague sentences had not yet got a quite unexceptionable sense, and a perfect language awaited construction by us. (*Philosophical Investigations* §98)

It is an idea that is repeated elsewhere in the *Philosophical Investigations*, for example, at §§123–124 where we read “A philosophical problem has the form: ‘I don’t know my way about’... It [ie philosophy] leaves everything as it is”. This needs some clarification, not least because it appears to limit the role of philosophy so severely as to make it effectively useless. What then are we to make of Wittgenstein’s insistence that ‘every sentence in our language is in order as it is’? Surely, we come across sentences from time to time which strike us as not being in order. Here are some: ‘Social science, as the word “science” implies, is a precise discipline’. ‘Learning phonics skills is the first important step in learning to read’. ‘Depression is an illness like any other’. ‘Education should stream children on the basis of their natural ability’. Wittgenstein’s apparent endorsement of ‘every sentence in our language’ is unfortunate, suggesting that each of the four sentences above is beyond reproach. Indeed, each of them might seem to some people at least to express simple common sense: to the lecturer in a Social Science Research Methods module, whose students reported her words to me with glee; to the writer of a UK Department for Education (2013) leaflet, *Learning to read through phonics: Information for parents*; to the doctor who spoke these words to a colleague of mine as he typed the prescription for anti-depressants; to the student who recorded her faith in the idea of ‘natural ability’ in an undergraduate essay.

Yet each of these statements can be challenged. The important point here is that the challenge is essentially on the grounds that the writer is in the grip of a *theory*. The first sentence shows the speaker holds a remarkably naïve theory about science as well as about social science: in particular one that shows no awareness of the way that the term ‘social science’ came into being as theorists and researchers sought in the nineteenth century to dignify the new discipline with the aura of the physical sciences (see Smeyers and Smith 2014). The second is questionable. Phonics as a reading ‘method’ is contentious (you would not know this from the Department for Education leaflet). Depression may often at least be a response to difficult circumstances in a person’s life, and to call it an illness immediately assumes that a medical doctor is the appropriate person to ‘treat’ it as she would tonsillitis or gout, that is through medication. The idea that there is such a thing as ‘natural ability’, a kind of stable attribute of the individual, perhaps expressed in terms of IQ, ignores the

possibility that ability may be acquired, for instance, through practice or good teaching. It is linked with the discredited theories of psychologists such as Cyril Burt.

The idea that ‘our language is in order as it is’, then, is one more warning that we are not to go looking for an ideal or perfect language: particularly one strongly coloured by theories, scientific or otherwise. *For the most part*, our ordinary language does not need to be replaced by something more ‘scientific’. We can talk of the sun rising and setting when ‘in fact’, as we might be tempted to put it, the sun is stationary and it is the earth that is moving. We can enjoy the distinctive smell of what we call the good sea air even if a biologist correctly informs us that much of that smell comes from dimethyl sulphide released by bacteria eating dying photoplankton. We can say we are standing on solid floor even if “we have been told by popular scientists that the floor on which we stand is not solid, as it appears to common sense, as it has been discovered that the wood consists of particles filling space so thinly that it can almost be called empty” (*The Blue Book* p. 45). It is worth quoting this passage further. Wittgenstein continues:

This is liable to perplex us, for in a way of course we know that the floor is solid, or that, if it isn’t solid, this may be due to the floor being rotten but not to its being composed of electrons. To say, on this latter ground, that the floor is not solid is to misuse language. For even if the particles were as big as grains of sand, and as close together as these are in a sandheap, the floor would not be solid if it were composed of them in the sense in which a sandheap is composed of grains. Our perplexity was based on a misunderstanding; the picture of the thinly filled space had been wrongly *applied*. For this picture of the structure of matter was meant to explain the very phenomenon of solidity.

Some Implications for Social Science

It is usual, and by no means wrong, to say that the central feature of Wittgenstein’s later work is his new way of thinking about language: his move from conceiving of propositions being connected ‘atomistically’ to states of affairs to his conception of ‘language games’, as noted above, and to his insistence that “For a large class of cases – though not for all – in which we employ the word ‘meaning’ it can be defined thus: the meaning of a word is its use in the language” (*Philosophical Investigations* §43). Now this is certainly helpful to the social scientist or educational researcher: it gives them a way of understanding how we play different ‘language games’ with the notion of causality, for example. Thus the language game played by physical scientists when they identify a catalyst’s part in a chemical reaction is rather different from the language game we play when we talk of smoking causing lung cancer, and different again when we talk of how the football team’s run of bad results caused the sacking of their manager. This we have seen in § III above; and it is worth repeating the further, crucial point: none of these ways of talking or thinking about causation has any claim to be the primary or essential sense of causation, as if the other ways were secondary, derivative or inferior.

It is equally true, however, and certainly it is especially helpful to the social scientist and those in cognate disciplines, to register the force and significance not just of Wittgenstein's changing views of how language has meaning but of his growing dissatisfaction, so marked in his later work, with science as the paradigm of all knowledge and his identification of it as prominent amongst the 'pictures' that had held him captive. There is space here to note only three such aspects of his dissatisfaction with science. The first is what Wittgenstein calls "our craving for generality" (*Blue Book*, p. 18). We might think here of the widespread tendency these days to suppose that explanations will be found 'in the genes' for a wide range of aspects of human behaviour, from Attention Deficit Hyperactive Disorder (ADHD) to criminality. Or we might think of the way that some people are excited by the expectation that neuroscience will supply the key to our understanding of human learning – and thus answer the question of the purpose of education. The discussion of causality above is another instance of the assumption of generality, here the idea that there must be one true account of causality to which all talk of causality will have to conform. Wittgenstein writes that by 'our craving for generality' he means

The method of reducing the explanation of natural phenomena to the smallest possible number of primitive natural laws ... Philosophers constantly see the method of science before their eyes, and are irresistibly tempted to ask and answer questions in the way science does. This tendency is the real source of metaphysics, and leads the philosopher into complete darkness. I want to say here that it can never be our job to reduce anything to anything, or to explain anything (*ibid.*).

The idea that it is not our job (as philosophers) to explain anything may sound strange, but this is a second aspect of Wittgenstein's escape from the capture of science. It is a matter of doing justice to the fact that not all understanding and knowing comes down to explaining. In science it often does. We explain someone's slurred speech: he suffers from a particular condition (perhaps he has had a stroke) of which this is a symptom. We explain the distinctive flora and fauna of Australasia: it became separated from the great land-mass we call Pangaea at an early stage when that land-mass began to divide, and so Australasia had a long time over which its particular flora and fauna could evolve. But in social science, our understanding and knowledge typically take a different form. When we seek to understand puzzling behaviour in a strange culture (the way children dress up on the last day of October and go round houses demanding treats and threatening 'tricks', say), we are not asking what caused the behaviour: we are asking what it *means*. The rituals of marriage, of university graduation ceremonies (why are these young people wearing strange clothes in which fur figures predominantly?) or of the game of cricket are not to be understood in terms of what brought them about. It is not much help to the bewildered foreigner watching her first game of cricket to start by saying "Well, in 1702...and the 'wicket', if you think about it, looks a bit like a wicket gate...". The modern game of cricket is governed by various rules and conventions, for instance, that if the ball hits the wicket (broadly speaking) this is not good for the batsman, and the person who has thrown (or 'bowled') the ball has secured an advantage for his or her side. Just as to understand the word is now, for Wittgenstein, in most cases to understand its use, so to make sense of human behaviour is to grasp that it is for

much of the time constituted by ‘rule-governed behaviour’. Thus making sense of it consists of understanding those rules or, to use a term that is perhaps more helpful, those conventions.

This is to say – the third aspect of Wittgenstein’s escape from the capture of science – that this later Wittgenstein has a more generous conception of knowledge than the author of the *Tractatus*. In *On Certainty* (260), he writes “I would like to reserve the expression ‘I know’ for the cases in which it is used in normal linguistic interchange”: that is to say, scientific discourse or ‘interchange’ is no longer to be taken as the model or paradigm. Let me give a vivid and, I think, rather moving example of this from the twenty-first century UK (and if some in this increasingly disunited kingdom would specify that it is an English – rather than Scottish, Welsh or Northern Irish – example then I concede the point to them).

A sportswear retailer called Sports Direct has been the subject of government investigation following complaints that it paid the workers at its warehouse less than the minimum wage; that staff there were penalised for matters such as taking a short break to drink water, and for taking time off work when they were ill. The investigation was conducted by the Select Committee of the UK Government’s relevant department, which is called Business, Innovation and Skills (BIS), following earlier revelations by BBC journalists. The Chair of the Select Committee, Iain Wright MP, appeared on the BBC programme *Inside Out* on 10 October 2016. He spoke about how workers at the warehouse complained that they were ‘treated like cattle’ and talked about the distress their working conditions had forced them to endure. He described them as ‘incredibly brave’ for coming forward to give evidence to the journalists who first uncovered the story. There is a possible question here concerning how much credence should be attached to the stories the workers told. Might they for instance have exaggerated their distress, perhaps in order to win compensation? Mr. Wright said: “When someone’s looking at you in the face, and crying, and saying ‘nobody’s listening to me’ ... we knew from looking in their eyes that they were telling the truth”.

How can we *know* the truth in cases like this? Shouldn’t there be more *scientific* ways of establishing the veracity of the workers’ testimony, such as lie detector tests, footage from CCTV in the warehouse, or at least the cross-examination of witnesses, and corroboration of their accounts by other witnesses? Against such demands for greater certainty – indeed for what we might call hyperbolic certainty – we have Mr. Wright’s calm assurance: “*We knew from looking in their eyes that they were telling the truth*”. In similar vein, Wittgenstein writes that there is such a thing as “imponderable evidence” (*Philosophical Investigations* p. 228): that is, evidence that cannot be precisely calculated, weighed and measured, but which is good evidence nonetheless.

Imponderable evidence includes subtleties of glance, of gesture, of tone ... I may recognize a genuine loving look, distinguish it from a pretended one (and here there can, of course, be a ‘ponderable’ confirmation of my judgment). But I may be quite incapable of describing the difference. (ibid.)

This is no more than what the social science researcher understands perfectly well. She talks with 9 year-olds about their experiences of the culture of assessment

and testing at school. How does she know whether she is hearing the truth, or what they think they are supposed to say? The anthropologist records what the natives say about the traditions of the cock-fight, but what is there to prove that this isn't just the story they always tell visitors (it fits with Europeans' prejudices and makes them happy, and the islanders are kindly people who do not want to disappoint the tourists)? She knows from looking in their eyes, and whilst she may not, on this occasion or that, see enough to form a sensible judgement, if she does not look into their eyes she does not see at all.

Conclusion

Thus Wittgenstein invites us to follow his journey, to shake off the bewitchment of science and scientific language and to return to searching for the meaning of what we find rather than its cause. Ordinary human understanding, such as the Chair of the Select Committee was satisfied with, will not give us the certainty that science promises, but it is the search for scientific certainty that is causing the problems rather than leading us in the direction of the answer.

Here, in the form of little more than a coda, or perhaps an extended end-note, is something rather odd. Many of the standard textbooks on the philosophy of social science – and here I am referring only to those for which I have great respect and which my undergraduate students find helpful – have little or nothing to say about Wittgenstein. Vernon Pratt's *The Philosophy of the Social Sciences* (1978) mentions Wittgenstein in two endnotes only. One is to the effect that the *Philosophical Investigations* 'may also be read as offering a defence of logical positivism'. The other notes that 'Concepts are given their sense by their role in a way of living, and, since ways of living differ, so do concepts', with the suggestion that a kind of conceptual relativism is thus implied. Martin Hollis's *The Philosophy of Social Science: An Introduction* (1994) tells the reader that the *Philosophical Investigations* "makes fertile use of the notion of a 'game' in discussing human action" (p. 18) and helpfully connects this with the idea of rule-governed activity, which is expanded upon later in the book (pp. 152–7). Brian Fay's *Contemporary Philosophy of Social Science* (1996) has just two references, one explaining that those being interpreted and those interpreting them must both be persons, and citing Wittgenstein's well-known remark that if a lion could talk we would not be able to understand what it said (p. 26). The other employs an analogy from the *Tractatus*: an eye looking out at the world will not see itself (p. 42). Michael Root's *Philosophy of Social Science* (1993) makes no mention of and no reference to Wittgenstein at all. The only introductory textbook on the philosophy of social science I know that draws substantially on the work of Wittgenstein is Roger Trigg's *Understanding Social Science* (1993), but although there are over a dozen references to Wittgenstein they nearly all relate only his discussions of rule-governed activities and forms of life.

If Wittgenstein is deeply helpful to us as social scientists in liberating us from the 'capture' of science, as I have argued in this chapter and for showing us how such

liberation may be effected, it is surprising that this is barely represented in the standard introductions to the philosophy of social science; and perhaps the fact that it is so little represented there goes some way to explain why our liberation from the language and fantasies of science is still far from being complete.

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