
The metaphysical standing of the human: A future for the history of the human sciences

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journals.sagepub.com/home/hhs**Steve Fuller**

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Abstract

I reconstruct my own journey into the history of the human sciences, which I show to have been a process of discovering the metaphysical standing of the human. I begin with Alexandre Koyré's encounter with Edmund Husserl in the 1930s, which I use to throw light on the legacy of Kant's 'anthropological' understanding of the human, which dominated and limited 19th-century science. As I show, those who broke from Kant's strictures and set the stage for the 20th-century revolutions in science - from Hegel, to John McTaggart, to Max Weber - typically were pursuing crypto-theological questions about how a finite being can comprehend an infinite universe. This journey is about the 'common measure' of being human, which is what links Plato to Kuhn, but has been most consistently taken up by law. I suggest that in seeking this 'measure of man', we may discover that to be human is not necessarily to be *Homo sapiens*, which would suggest a radical reorientation of the history of the human sciences.

Keywords

anti-realism, Hegel, Kant, posthuman, transhuman

Introduction: My personal journey to the history of the human sciences

My first serious study of metaphysics was via a close reading of Dummett (1978), which was all the rage when I entered Cambridge in 1979 as a Kellett Fellow from

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Columbia University. That book, mainly a collection of Dummett's journal articles over the previous quarter of a century, is now remembered as having consolidated 'anti-realism' as a credible position across a range of philosophical fields. Moreover, Dummett's version of anti-realism dovetailed nicely with the emerging 'social constructivist' mentality emerging from the nascent science and technology studies (then known as the 'sociology of scientific knowledge'), which was central to Mary Hesse's teaching in my History and Philosophy of Science course at Cambridge. Dummett's specific characterisation of 'anti-realism' as truth-value indeterminacy also played into the bubbling but still largely underground post-structuralist and deconstructionist scene, centred on recent English translations of the works of Michel Foucault and Jacques Derrida, to which I had been exposed as an undergraduate at Columbia, largely through the English and Comparative Literature Department, where the recently tenured Edward Said was one of my teachers. My pre-doctoral publications were largely concerned with this 'perfect storm' of thought, on the basis of which I secured my first regular academic post in 1985 (e.g. Fuller, 1983a, 1983b). What follows is a rational reconstruction of the components of this perfect storm, which I believe remains relevant to orienting the future of the history of the human sciences, especially with regard to the identity of 'the human', the field's putative object of study.

I begin by retracing the resonant phrase 'crisis of the human sciences' to the later work of Edmund Husserl, who was concerned less with the nature of the human sciences than with the nature of science as a human activity. Here Husserl productively engaged with his student, Alexandre Koyré, who challenged his default Kantian understanding of science, including mathematics, as a sphere of enquiry limited by our finite nature. Contemporary posthumanism is an outgrowth of Husserl's 'finitist' vision of the human. In contrast, Koyré historically recovered the Platonized version of Christianity that had launched the West's 'Scientific Revolution', which in his own day was being radically extended by his compatriots, the Russian 'Cosmists', a quasi-religious/quasi-scientific precursor of contemporary transhumanism (Fuller, 2016). Mathematics proved to be such a key disciplinary site for negotiating the nature of the human because its most exotic entities – such as non-Euclidean geometries – turned out to be instrumental in the early 20th-century revolutions in physics. How was it possible that these conceptual fancies captured the nature of reality, if we are no more than finite animals? At this point, I turn to the line of Christian thought from Augustine and Scotus through Hegel and McTaggart to Dummett, which portrays the human – as exemplified in the person of Jesus – as having a foot in both divine eternity and animal temporality. This is followed by an extended discussion of 'suffering' as something not reducible to pain but a transitional state in the human as we pass from the animal to the divine, a theme common from narratives of Christian salvation to those of secular progress, a point especially stressed by Max Weber in his account of modernity. I conclude with an ontological reflection of what 'human' might mean in the future, given the various modes of embodiment that the term has both historically invited and is now open to, which I epitomise in the idea of the 'cishuman'.

The Husserl–Koyré encounter as the real crisis of the human sciences

My formative period was dubbed at the time a ‘crisis of the human sciences’, a phrase which suggested an intensification of the issues first raised by Husserl (1954[1936]), who had questioned whether a universal mathematical perspective could ever be true to the existential condition of humanity, given that humans – at least as understood as finite animal beings – could only ever have direct experience of a small fraction of the reality that mathematics projects. Now, less than two generations later, post-structuralist theorists were calling into question whether ‘the human’ was itself an appropriate basis for even a critique of this sort – a trope that Bruno Latour continues to exploit to this day. In the interim ‘the human’ had lost its unique metaphysical position through a multi-pronged attack on its privileged form of agency from Marxists, Freudians, behaviourists and indeed even ‘cognitivists’ such as Levi-Strauss, Piaget and Chomsky. (Piaget, 1970[1968] may have been the first work to see the collective drift of this argument.) In their quite different ways each one broke decisively from the Romantic conception of unbounded subjectivity still found in Sartre’s version of Existentialism, which itself had drawn inspiration from Husserl’s last-ditch efforts to defend the human lifeworld from its scientific deformations.

Set against the trajectory of Western intellectual history, Husserl (1954[1936]) had opened the door to *posthumanism* by explicitly arguing – contrary to Enlightenment ideology – that the universalism of the modern scientific world-view is *prima facie* alien to the human condition, and hence urgently needs to be explained as some sort of projection of that condition if it is to count as authentic knowledge for humans. In effect, a ‘philosophical anthropology’ is required to remind humans of what sort of being they are, lest they forget as they are blinded by science. In many respects, Husserl followed that pessimistic strand of European thought – whose most notorious expression was Oswald Spengler’s *The Decline of the West* – that interpreted the science-driven devastation of the First World War as the beginning of the end of human progress, if not humanity itself. This sensibility arguably received its most sublime expression in Heidegger’s *Being and Time*, a book that had been rushed into print nearly a decade earlier by his mentor Husserl. However, Husserl’s own pessimism was relatively muted, taking the form of a forensic investigation into how humanity’s cosmic ambitions could have arisen in the first place, given our resolute finitude. His most specific address of this problem was in terms of the origins of world-spanning Euclidean geometry out of ordinary Greek measuring practices. Derrida’s commentary on the French translation of those few pages of Husserl (1954[1936]) helped to launch his own path to deconstruction in the early 1960s (Derrida, 1989[1962]).

In focusing on the emergence of a universal mathematical horizon as a test-case for what it means to be human, Husserl was influenced by his student, the Russian émigré, Alexandre Koyré. Now regarded as the archetypal ‘internalist’ historian of science, Koyré distinguished sharply ‘Aristotelian’ and ‘Galilean’ approaches to physical reality, the latter using mathematics to leverage out of intuitions rooted in humanity’s default animal modes of being in the world. Consider this an operational definition of ‘transcendence’. Whereas Aristotle was allergic to the use of mathematics beyond concrete

tasks of measurement, Koyré (1957) embedded Galileo's sense of transcendence in a tradition that not only stretches back to Plato but also includes mystics and heretics such as Jakob Boehme, Nicholas of Cusa and Giordano Bruno, all of whom understood the human as neither an ordinary animal nor entirely *sui generis*, but as the privileged portal to the boundless horizons of the divine mind.

Johannes Kepler and Isaac Newton also fit comfortably in this tradition, as one of Koyré's fans soon exploited for literary purposes (Koestler, 1959), though of course we remember both scientists mainly for the empirically redeemed features of their thought. Moreover, it was this very same mystical/heretical sensibility – now via Emanuel Swedenborg – against which Kant would later launch a 'critique of pure reason', the long-term impact of which served to dampen any ambitions that science might have had in completing the task of theology (Fuller, 2014). To be sure, this conclusion was strongly resisted by Kant's immediate idealist successors, Fichte, Schelling and especially Hegel. And of course, it was also resisted by the subsequent history of science, starting with the coinage of 'scientist' in English to name a profession, courtesy of one of Kant's early fans, the natural theologian William Whewell. Nevertheless, there is no denying that Kant's critique fuelled what by the late 19th century became 'atheism', according to which theology, notwithstanding its pastoral role to believers, has no epistemic task worth completing by anyone.

I stress Koyré in this story because he was doing the genealogy of an attitude to the human condition that we now associate with *transhumanism*, something which Kant would have understood as a secular blasphemy against the human, understood as a *sui generis* being. Nowadays it is common to observe that Husserl's understanding of the history of science was no less 'internalist' than Koyré's, both focusing on the intellectual rather than the social conditions of science. Yet that superficial similarity masks the profoundly different normative conclusions that they drew. On the one hand, Husserl was concerned that the West's fixation on mathematically based virtual realities – first on paper and then in the laboratory – might result in human self-destruction in the actual world. This was the ticking time bomb underlying the 17th century's Scientific Revolution. On the other hand, Koyré believed that the very same trajectory held the key to unlocking secrets to a universe well beyond humanity's normal earthly parameters.

Here Koyré was on the same page as his fellow Russian émigré Alexandre Kojève, with whom he ran a famous Hegel seminar in Paris just before the outset of the Second World War, which saw the likes of Leo Strauss and Jacques Lacan in attendance (Roth, 1988: esp. ch. 4). Both Koyré and Kojève were influenced by the Russian Cosmist philosopher Vladimir Solovyov, who imported Hegel to Russia to fortify the mid-19th-century 'Slavophile' movement that blended theological and scientific sensibilities in a forward-looking nationalist vision. Crucial to the blending was a rather materialist reading of the Eastern Orthodox Christian doctrine of *theosis*, whereby humans come to display their godlike character in the 'imitation of Christ', where this phrase involves what Solovyov called *aprawdanie*, which corresponds to what Hegel called *Aufhebung*, rendered in English as 'sublation', whereby we escape what holds us back from achieving a higher state of being without completely forgetting its enabling conditions (Michelson, 2010; Young, 2012: ch. 8). The political theorist John Gray (2011) has deftly traced the lingering effect of this sensibility in Soviet ideology and practice, notwithstanding its

official atheism, which in turn has eased the rehabilitation of Christianity in post-Soviet Russia, as well as fed into contemporary Western transhumanism.

Mathematics after Kant: The crafting of the anthropological human for the sciences

A good shorthand way to cast the difference between Husserl and Koyré vis-a-vis the advancement of science is that the former regarded it in *precautionary* and the latter in *proactionary* terms – the former pointing to limits within which we must remain, the latter to limits which we must ultimately overcome (cf. Fuller and Lipinska, 2014: ch. 1). Their division split along lines that would have been recognisable to both mathematicians and theologians throughout the modern period. Kant's 'transcendental' approach to philosophy may be understood as a precautionary response to the proactionary 'transcendent' approach of people whom we now tend to divide, perhaps artificially, into 'mystics' (e.g. Swedenborg) and 'rationalists' (e.g. Leibniz). I shall dwell more on the theological side in what follows, but the mathematical side is of at least equal significance and may even be simply the quantitative version of the theological difference.

Husserl had been a student of Leopold Kronecker, the mathematician who believed that his field should recognise only entities that are humanly constructible, or as Dummett would say, 'decidable'. Such entities are provable by finite means. On this basis, he saw mathematicians as discovering not abstract objects per se but abstract truths about the natural world. This attitude had been common in the Enlightenment and became the general consensus among academic mathematicians after Kant (Collins, 1998: 697–8). Kronecker became the inspiration for the so-called 'intuitionist' movement led by L. E. J. Brouwer, which is now more generally known under the rubric of 'finitism' after its influence on Wittgenstein's later philosophy and the sociology of scientific knowledge, both of which are fairly seen as 'anti-realist' in Dummett's sense of not presuming the existence of entities before they have been formally constructed. The 'Edinburgh School' of Barry Barnes and David Bloor have been explicit about this genealogy, which should come as no surprise considering Bloor's own background in the psychological foundations of mathematical knowledge (e.g. Barnes, Bloor and Henry, 1996). In retrospect, it is surprising that they never made common cause with Dummett.

In contrast, Koyré was more sympathetic to Kronecker's great opponent, Georg Cantor, the founder of modern set theory, who launched the move to make mathematics a discipline independent of the natural sciences, given that these fields – notwithstanding their epistemic grounding in both experience and technique – were nevertheless inherently restricted in the range of thought that they explored by virtue of their empiricism. In short, the development of mathematics was held back by the artificial constraints set by 'naturalism', which had gone so far as to divest 'intuition' of its original Platonic meaning of non-discursive intellectual knowing. Cantor's bold move was to perform a Gestalt switch from the human to the divine – reversing Kant's self-declared 'Copernican Revolution' in philosophy – by attempting to reconstruct mathematics from God's standpoint, which is to say, infinity. This opened up the field up to accept many of the

entities – irrational numbers, Non-Euclidean geometry – that Kronecker’s programme had deemed illegitimate, yet most of which in the long term have proved to bear fruit in our understanding of the natural world (Collins, 1998: 699–700). Cantor himself saw this in terms of our making progress from our fallen state back to the mind of God, which eventually led him to theology – and madness (Berlinski, 2005: ch. 8).

When Dummett speaks of ‘realism’, he intends Cantor’s frame of mind, one which makes sense of the fact that a cross-culturally recognised mathematical constant such as π is ‘real’, even though its exact value cannot be demonstrated by finite numerical means. In short, the realist holds that there are domains about which things may be said which are either true or false yet remain undecidable by humans. But by pitching realism in terms of something that exceeds human decidability, Dummett exposed an ambiguity in the anti-realist position: Is anti-realism meant to provide a transient/partial or a permanent/total opposition to realism? Put another way: Can something pass from being undecidable to being decidable – and perhaps vice versa? Because the realist does not depend on the concept of decidability to define reality, she can answer yes to both questions, since all she would be talking about is our access to worlds that continue to exist even if/when we do not have access to them. This is quite a natural way to think about abstract objects. However, if the anti-realist admits that the concept of decidability enjoys such fluidity, then domains of reality literally pass in and out of existence as we gain and lose the capacity to construct them. I shall return to this point in the conclusion, as it bears on the vexed idea associated with Kuhn (1970[1962]), but with which thinkers as diverse as Paul Feyerabend, Alasdair MacIntyre, Charles Taylor and Ian Hacking have shown sympathy – namely, that to shift to a new paradigm is literally to inhabit a ‘different world’ (e.g. Hacking, 1983: ch. 5).

In any case, with the wisdom of hindsight, we can say that lingering philosophical devotion to Kant inhibited the acceptance of many of the revolutionary breakthroughs across the sciences in the nineteenth and twentieth centuries by stressing a sort of decidability of knowledge claims that forced the infinite to be constructible from the finite. Put another way, the Kantians set up an impossible task: If the world is radically other than how it normally appears to us, then that fact will still need to be demonstrated by starting from ordinary ‘common sense’ premises. To suspend any of the more substantial of these premises would be tantamount to assuming a fictional world for purposes of proving a fact. And this is exactly what Hans Vaihinger, the founder of the major journal of Kant scholarship, *Kant Studien*, concluded – rather explosively at the time, the early 20th century, as it seemed to confirm the Nietzschean idea that even our best scientific theories are just fabrications (Vaihinger, 1924[1911]). Eventually this idea was domesticated within Anglophone philosophy of science as ‘instrumentalism’ (Fine, 1993). In his ongoing effort to reinvent the conceptual wheel for audiences always in need of a cart to convey their empirical goods, Latour (2011) has coined the term ‘factish’ (i.e. fact + fetish) to capture the same sensibility.

The epistemic weakness of this position can be shown historically – namely, in the scramble of various Kant-inspired thinkers to render ‘anthropologically respectable’ the suspension of Newton’s assumption of absolute space and time and Euclid’s parallel postulate, both of which enabled Einstein to make his breakthroughs in relativity theory.

Quantum mechanics continues to present a challenge to Kantian thinkers because the main interpretive options involve an outright breakdown of ordinary conceptions of causation at the micro-physical level, a postulation of unprovable ‘hidden variables’ (π -like entities in the physical world) or the proliferation of multiple worlds from each quantum event. In short, Kant’s attempt to discipline the human mind – perhaps motivated by his much vaunted residual sense of Christian piety – has proved to be a failure, given the epistemic and especially instrumental productivity that has resulted from exceeding any such discipline.

Of course, anti-Kantians, especially of an Abrahamic religious persuasion, can much more easily reconcile themselves to science’s perennial epistemic revolutions. They believe that we are not exclusively human, as we also participate in the divine, however imperfectly. This is the source of our less empirically grounded imaginative constructions, which if sufficiently concretised might over time come to be seen as having anticipated what we shall know more directly through the senses. This is how I am inclined to understand what has been called, after Kant, the *a priori* (Fuller, 2015: ch. 2). So let us now turn to the relevant theological differences.

Interlude: Humanity as the solution to a theological puzzle

Behind Kant’s felt need to deflate the human pretence to ‘transcendence’ was the changing perception of the ontological argument for the existence of God. The argument, normally attributed to Anselm, an 11th-century Archbishop of Canterbury, basically attempts to show that logic itself compels the existence of God, understood as the being greater than which cannot be conceived along any dimension we might imagine: Show me the most knowledgeable, beneficent, powerful, and so on, human – and God is better than any of them. So argued Anselm. While the philosophical focus after Kant has been on whether Anselm was right in the first place in supposing that such a semantic argument constitutes a valid proof of God’s existence, prior to Kant the focus was on specifying the sort of access to God that the argument might provide, assuming its fundamental soundness.

In this original context, the access was presumed to be negative, justifying an ‘apophatic’ theology, which approaches the deity by what it is not, since presumably as finite beings we can never fully comprehend an infinite being like God. However, the Oxford Franciscan, John Duns Scotus, writing two centuries after Anselm, explicitly reversed this line of thought, which opened the door to thinking that the ontological argument provided *positive* access to divine being. Koyré began his doctoral studies by examining Descartes’ adoption of the Scotist interpretation of the argument to underwrite the power of human reason to comprehend God’s universe, exactly the version of the argument – and its implied godlike conception of humanity – which Kant was keen to oppose.

Scotus approached the problem of knowing God very suggestively, via a meditation on the concept of infinity, drawing a distinction between a negative and a positive sense of ‘infinity’ – ‘potential’ and ‘actual’ – which would prove influential on thinkers as diverse as Leibniz, Hegel and Cantor. Here is the key paragraph from Scotus,

For our purposes, let us change the notion of the potentially infinite in quantity, if possible, to that of the quantitatively infinite in act [i.e. in actuality]. For just as it is necessary [in the case of potential infinity] now that the quantity of the infinite should always grow by receiving one part after another, so we might imagine that all the parts that could be taken were taken at once or that they remained in existence simultaneously. If this could be done, we would have in actuality an infinite quantity, because it would be as great in actuality as it was potentially. And all those parts which in infinite succession would be actualised and would have being one after the other would be conceived as actualised all at once. Such an infinite [in actuality] would indeed be a whole and in truth a perfect whole, since there would be nothing outside it, and it would be perfect since it lacks nothing. What is more, nothing in the way of quantity could be added to it, for then it could be exceeded. (Duns Scotus, 1975[1306]: 5.6)

What Scotus is describing under the rubrics of ‘potential’ and ‘actual’ infinity is the difference between the human and the divine point of view – but in a way that suggests the convertibility of one to the other. In effect, God holds in his mind in one ecstatic instant all the parts of the universe only a small part of which is ever experienced by his creatures in the regions of space–time in which their earthly lives move.

This idea of convertibility should not be surprising, as it comes from a devotee of a religion fixed on the person of Jesus, whose uniqueness lies in being at once *with* and *above* those who were created in ‘the image and likeness’ of God, a phrase that appears early in book of Genesis, which Augustine stressed as the standard to which human condition as such had an obligation to return. The ‘transfiguration’ of Jesus into Christ occurs when he personally discovers his divinity (Matthew 17: 1–9; Mark 9: 2–8; Luke 9: 28–36). Jesus accomplished this by leveraging his anxieties over his temporal mission into the steadfastness demanded of his eternal significance, which was vindicated – at least to the satisfaction of Christians – by Jesus’ resurrection from the dead. In the light of the Slavophile element of my account, it is worth observing that while all Christians recognise the Transfiguration as a holy day, it enjoys pride of place in the Eastern Orthodox Church, the established Russian version of Christianity.

Hegel and the transfiguration of the human in time

Augustine’s *Confessions* had elevated the transfiguration of Jesus-to-Christ into a philosophical meditation on the relationship between the temporal and the eternal, which could be read as suggesting that a similar transfiguration was cognitively available to all humans. This explains the influential turn taken by the early 20th-century Cambridge Hegelian John McTaggart, who taught the founders of analytic philosophy, G. E. Moore and Bertrand Russell, and later inspired Dummett’s own metaphysical journey (Dummett, 1978: chs. 18–21). McTaggart is remembered today mainly for having formulated a contradiction between the two ways in which we normally talk about time which threatens to render time a logical illusion. On the one hand, we say – based on personal experience – that events pass through being ‘future’, ‘present’ and ‘past’ in succession, whereas on the other we also say – based on mathematical physics – that those same events are arranged in a permanent order of ‘before’ and ‘after’, rather like a number

series. McTaggart (1908) called the former the 'A-series' and the latter the 'B-series'. The following year he made the theological backdrop explicit as he tried to reconcile the senses of time involved in human temporality and divine eternity, respectively, the former comprehending time moment-to-moment and the latter all at once (McTaggart, 1909).

As a Hegelian, McTaggart interpreted the problem of time in terms of trying to arrive at a 'C-series' that reconciled the contradiction between the A- and B-series in some more inclusive whole. McTaggart proposed several versions of what exactly constitutes this 'more inclusive whole' without ever settling on one. The obvious question to ask about his self-assigned task is whether it amounts to anything more than an ordinary logical puzzle. Since Hegel is involved, the answer is probably yes. I believe that the C-series aspires to be the logic of the transfiguration, whereby A-series denizens come to understand the B-series, not simply in the usual formal way, as in the realities projected by a system of mathematical equations which are fundamentally indifferent to the human condition, but as a simulated version of future lived experience. McTaggart's contemporaries in 'psychical research' would have recognised this state of mind as 'clairvoyance' but today – especially for transhumanists – it might fit more comfortably in the ambit of virtual reality technologies. Thus, Jesus occupied the C-series when he came to understand at once that he would die and that his death would not be in vain, which in turn gave him the courage to face doubters and accusers as he increasingly did things that would only make sense in light of his resurrection.

Put more prosaically, the C-series is the site where a Gestalt switch can be made between the A- and B-series, because enough temporal pieces are in place to solve the overall puzzle that is eternity. If this still seems too theological, then consider that the sort of episodes that historians of science are inclined to deem to have involved 'Gestalt switches' are ones in which a universal judgement is intuited on the basis of one or at most a handful of cases. This is what the pragmatist Charles Sanders Peirce, influenced by Aristotle's concept of *apagoge*, called 'abduction', which in turn provided the basis for what remains the most interesting book ever written on the role of Gestalt switches in science (Hanson, 1958). This is not ordinary induction, whereby a generalisation is reached on the basis of aggregating a series of events of equal epistemic value. On the contrary, in abduction one observation in the series may trigger a step change in understanding that rearranges all the previous events into a coherent whole. A related idea that relocates the Gestalt switch from the individual to the collective mind is that of the take-off point in an exponential growth curve, which economists sometimes identify with the moment that an innovation reaches a level of adoption such that the environment changes to further hasten the innovation's diffusion (Rogers, 2003[1962]). In Gestalt terms, it is the moment that figure and ground reverse positions.

At the same time McTaggart was effectively using Hegel to secularise the Transfiguration, Max Weber was approaching the same matter in a more sociological and deconstructive manner, which ended up becoming the cornerstone of his comparative sociology of religion (Weber, 1963[1922]). Weber's attempt to understand the great 'world-religions', as they came to be known in the second half of the 19th century, was in terms of what Leibniz had originally dubbed 'theodicy' – namely, the frame of mind required to understand God's sense of justice, and specifically why a good God would let

bad things happen to good people. The Gospels clearly implied that Jesus had acquired such an understanding with regard to his own person during his transfiguration into Christ. Hegel explicitly cites Leibniz's *Theodicy* as inspiration for his dialectical philosophy, which he generally presented as an abstract historical narrative, one suited to the idea that reality appears to us as parts of God's puzzle in a succession of 'moments', each of which involves a Gestalt switch (i.e. 'sublation') on the totality of experience that had preceded it. With each new 'synthesis', a glimpse of the divine is gained, a C-series moment in which the A-series merges with the B-series, in McTaggart's terms. Where McTaggart differed from Hegel was over the latter's conviction that these successive C-series moments constituted 'progress' in some absolute sense, namely, to an eventual reunion with the mind of God.

Weber and the transfiguring of the human through suffering

Max Weber's distinctive contribution to the above discussion was his realisation that the anti-authoritarian strain in religious experience turned on what ultimately lay behind theodicy, namely, a leveraging of human suffering into a vehicle of divine understanding. This resulted in his famous distinction between 'mystics' and 'ascetics', who in their rather different ways – the one seeking divine ecstasy in oneself and the other imposing divine order on the world – aimed to bring the divine and the human in a closer correspondence than the priestly classes of the established religions generally found comfortable. A good way to appreciate the spirit animating this turn of mind – as well as to see how easily it could be radicalised and ultimately secularised – is to imagine the Biblical Job's complaints against God becoming the basis for an empirical research programme conducted on oneself and one's fellows, the objective of which is to demonstrate that suffering is simply the affective expression of ignorance, which may be remedied over time through specific sorts of effort.

This repurposing of the Job story highlights the misgivings that the priestly side of Christianity has always had towards theodicy: On the one hand, its intellectualisation of suffering appears to trivialise the intensity of the experience; on the other, the arrogant pretext for this intellectualisation is that we might learn to second guess God's will. Nevertheless, from a strictly Biblical standpoint, theodicy coheres well with humanity's default fallen state in its relationship to God, which requires an arduous 'mind's journey to God', to recall the title of the main work of John Fidanza, aka Bonaventure (1993[mid-13th century]), director general of the Franciscan order and the main contemporary Parisian rival of the Dominican Thomas Aquinas. The 'journey' is one in which we get better at transcending our animal passions, which for all their compelling immediacy are ultimately reminders of our fallen state – which is to say, a measure of how far we have yet to go. Thus, Bonaventure's sequence of instruction along this intellectual journey starts with the natural sciences, then moves to the human sciences and ends in theology. The resulting ethic is one which continues to bear fruit in the modern scientific sensibility, which remains hopeful while in the midst of a fallible and never-ending search for the truth (Harrison, 2007).

I raised the Aquinas–Bonaventure rivalry because the possibility of our access to the actually infinite – the sort of thing that concerned Husserl but exhilarated Koyré and now

divides the posthuman from the transhuman vision of humanity – began as a distinction in orientation between the Dominican and Franciscan orders of the Roman Catholic Church vis-a-vis our prospects for acquiring knowledge of God (Fuller, 2011: ch. 2). Unlike other monks, the ‘Blackfriars’ and the ‘Greyfriars’, to name the Dominicans and Franciscans by the colour of their garments, were not administrators of Church lands but licensed merchants of the Gospel who quickly populated the podiums of the newly established universities (Collins, 1998: 472 ff).

Officially the friars were known as ‘mendicant’, which literally means that they were ‘beggars’, but that was prior to the strong modern distinction between, say, a homeless person relying on handouts and a travelling salesman working on commission. For the mendicants, then, ‘humanity’ was the name of a brand for a Christian product that was marketed to *Homo sapiens* in ways that stressed somewhat different aspects of the common Biblical heritage. Since Weber’s day, sociologists have come to characterise such markets as pertaining to ‘transcendental goods’ (Stark and Bainbridge, 1987). Thus, the friars began the mode of Christian life that eventuated in the great Protestant reformers, the evangelists and, arguably, today’s secular motivational speakers. In any case, the two orders quickly sharpened their differences in the manner of market competitors. Generally speaking, the Dominicans proved more faithful to Rome’s stewardship of humanity’s groundedness in the natural world, whereas the Franciscans tended towards heresy as they were drawn to the totality of Creation in the full cosmic sense, which strictly speaking exceeds papal jurisdiction (Sullivan, 2011). In terms of pagan philosophy, the former tilted towards Aristotle and the latter towards Plato.

To be sure, Bonaventure recognized the temptation for humans to identify so fully with the passion of suffering as to embrace what nowadays is called ‘victimhood’ and thereby, Schopenhauer-style, see suicide as the ultimate form of defiant human agency. This style of elevating the state of the sufferer, which often features in animal rights and sometimes in human rights discourse (e.g. when matters of torture are involved) potentially stops the journey short at the first ‘naturalistic’ stage. In this respect, the interesting feature of St Francis of Assisi, the founder of Bonaventure’s order, was the claim that he had been able to *communicate* with the animals, which – as both Plato and Habermas would agree – meant that Francis could relate to them in terms of a common measure that is anchored in what humans normally regard as the exercise of full agency. Whatever St Francis might have been up to with the animals, it was certainly *not* about underwriting their victimhood. I shall pick up on this point in the conclusion, as it bears on whether the proper subject matter of the history of the human sciences need to be restricted to *Homo sapiens*.

It is worth underscoring that to see suffering as a productive feature of human life is by no means to deny the experience of pain. The modal standing of pain is simply shifted from being *unnecessary* to *necessary* for a meaningful life. It perhaps marks the modern mind’s biggest departure from Epicurus, notwithstanding the influence of his atomistic and indeterminist world-view. Thus, to use the mid-seventeenth term of Hobbes and Spinoza, and popularised by the English Puritans, one must ‘persevere’. This involves the overcoming of hardship by using the negative experience to learn what one really has valued all along. I have called it ‘suffering smart’ (Fuller, 2011: ch. 5). A modern pioneer of this attitude, who received support from the Franciscans, was the great Counter-

Reformation mystic, Teresa of Avila. She outright welcomed suffering as the expression of life as an extended trial in which death offers the prospect of redemption.

Instead of seeing Teresa as an outlier, we might instead regard Karl Popper's rigorous falsificationist scientific ethic as a kind of second-order expression of Teresa's 'no pain, no gain' mentality. Moreover, he saw it as a positive development in the human condition, given his self-fashioned 'negative utilitarianism', which identifies the minimisation of *physical* pain with an increase in welfare (Popper, 1945: ch. 9, n. 2). Thus, humiliation replaces death. We advance the species by regularly sacrificing our ideas and even our reputations instead of our physical selves, the fruits of which appear in the ongoing manufacture of what Popper called 'World Three', which he likened to the library and archive that survives us all (Popper, 1972: 122; cf. Fuller, 2007: 49). It is a world in which our embodying radical things is evolutionarily replaced by one in which we say radical things and then outsource their consequences to such non-human beings as paper trails and the archives that house them, increasingly in digital form. It also arguably provides the best naturalistic explanation for the lure of cyberspace and other forms of 'virtual reality' today.

To be sure, we would not have developed today's elaborate post-Nuremberg 'research ethics' regimes, had history conformed fully to the smooth Popperian trajectory. Nevertheless, if science and technology are to progress at the rate they have in the past, as transhumanists wish, then we may need to renew the West's historical openness to people sacrificing themselves in experimentation, including on oneself, given general agreement that animal-based experiments and simulations are ultimately limited in their epistemic applicability to humans. In short, we may need to update William James' quest for a 'moral equivalent of war', in which case the Nazis are to be faulted primarily for the involuntary nature of the extreme experiments they performed. But there is still a battle to be fought against the biological body to figure out who we really are (Fuller and Lipinska, 2014: ch. 4).

Of course, not only Nazi Germany but also the Soviet Union embraced with gusto the harsh line of thought I have sketched here, and Popper was right to think that it was latent in Marx's Hegelian roots. But of equal importance, Lenin, equipped with the added normative ballast of the political economy side of Marx, rebranded suffering as a world-historic 'cost' borne by particular individuals, capturing at once the intended ('price') and the unintended ('lost opportunities') consequences involved in striving to realise his ultimate socialist version of human redemption. Thus, the unintended consequences, albeit regrettable, were justified by the intended ones: After all, one cannot enable something without disabling something else, which may include human lives in both cases. The Stalinist quip that to make an omelette one must break some eggs is a memorably crass way of putting the point, which I have dubbed marginally less crassly as 'moral entrepreneurship'. It is the red thread that runs from Christian theodicy, through both capitalism and socialism, and whose natural heir is transhumanism (Fuller, 2011: ch. 5; 2012: ch. 4).

Conclusion: The history of the human sciences as the quest for commensurability

Today ‘critical’ academics worry that the ‘human’ is a hegemonic category which masks the diversity of human experience under an imperial notion of human progress, which deems some forms of humanity as ‘backward’ and hence in need of remediation. Such misgivings breed not only ‘political correctness’ discourses which are irksome to many – including me – but also legitimate scholarship that reveals fissures along race, class and gender lines, which continue to undermine any pretence of a universal humanity by cosmopolitan liberals – again including me. No one can deny that differences of various kinds in the human condition persist and may even be increasing, especially when understood in terms of a common measure, such as personal wealth. But what is this ‘common measure’, which provides the empirical basis for our ‘humanitarian’ geopolitical concerns? Perhaps the history of the human sciences should be focused on the very idea of a common measure of humanity, or the pursuit of *commensurability*. Law is the only discipline that has consistently taken this question seriously – and largely for practical reasons (Kelley, 1990).

Plato believed a common measure had to be settled before normative judgements of any kind could be made. Thus, Socrates’ opposition to Protagoras’ claim that ‘Man is the measure of all things’ in *Theaetetus* was less to the literal truth of the statement than to the spirit in which had been asserted, which seemed to imply that the measure varies according to the measurer. In contrast, Socrates wished to maintain that the very idea of measurement presupposes a sense of invariance which had to be identified within the human condition, if ‘man’ can be truly said to be the measure of anything, let alone of all things. This is arguably the origin of realism/anti-realism distinction in Dummett’s sense, with Socrates playing the realist to Protagoras’ anti-realist.

A history of commensurability would focus on the construction, deconstruction – and outright denial – of normative standards to which an otherwise heterogeneous group of humans are held accountable. The anti-realist belongs unequivocally to the class of deniers. Thomas Kuhn is an interesting witness in this context. He popularised a much stronger sense of ‘incommensurability’ in the history of science than had been previously assumed. Indeed, Kuhn (1970[1962]) produced, albeit unwittingly, a blueprint for manufacturing incommensurable paradigms within scientific disciplines, especially in the social sciences (Fuller, 2000: ch. 5). A neglected feature of the dominant ‘Whig’ history of science to which Kuhn was responding is that it did not deny incommensurability altogether. On the contrary, Koyré and Herbert Butterfield, the historian of early modern England who defended the Whig view by name, held that there had been exactly one world-historic break in epistemic standards. This 17th-century moment, which Butterfield likened to the appearance of Jesus on the world stage, is still called the ‘Scientific Revolution’, notwithstanding concerted efforts to debunk its significance – if not existence – over the past half a century (e.g. Shapin, 1996).

But these debunkers are quite different in spirit from Kuhn. Kuhn remained in the spirit of Koyré and Butterfield, all of whom would be classed as ‘realists’ in Dummett’s terms. Kuhn treated all that happened before the emergence of the Newtonian paradigm – that is, the consolidation of the Scientific Revolution into a universal research

programme – as the ‘pre-history’ of science in a way that Hegel would have appreciated. This point has been historically overshadowed by Kuhn’s fans, who, no doubt convinced by his life cycle account of the Newtonian paradigm, concluded that claims to incommensurability could be projected across time and space to cover all sorts of collective epistemic endeavours. The result is many lower-case, pluralised ‘scientific revolutions’, each one of which generates its own set of epistemic standards, resulting in multiple regimes of commensurability. Indeed, this is the lesson that most people draw from Kuhn today. He has become the patron saint, not of anti-realism but of *multi-realism* (cf. Fuller, 1988: ch. 3). When Kuhn is accused of being a ‘relativist’, it is this multiple worlds realism to which the accusers are referring.

In contrast, the debunkers – the true anti-realists – deny the reality of any such clean breaks which might make ‘commensurable/incommensurable’ an operative binary category for understanding the history of science. Their story, quite familiar from social constructivist accounts at least since Shapin and Schaffer (1985), is one in which epistemic standards are in principle always up for grabs and so what matters is who is in the room at the moment when the decision is taken. To be sure, some decisions stick longer and farther than others, but that is less to do with a wider audience coming to be persuaded of a common measure of judgement – what analytic philosophers call a ‘convention’ – than the aggregate effect of many specific decisions taken on many different occasions, based on the intellectual, social and material resources available at each moment.

From this truly anti-realist standpoint, talk of ‘networks’ is just a halfway house representation of what the anti-realist holds to be an inherently indeterminate process, given that the ‘strength’ accorded to ‘weak ties’ may change at any moment. Standards are no more than passing emergent features of the flux, which helps explain why scholarship in this spirit tends towards proliferating micro-historical social studies that focus on how something of allegedly momentous import – say, the ‘Scientific Revolution’ – had been decided in one or more potentially reversible local settings. Interestingly, this is also the view that the great analytic philosopher Donald Davidson (1986) had settled on at the end of his career, after having spent the previous quarter of a century defending a version of truth-conditional semantics, the intellectual backbone of the sense of realism that Dummett pitted anti-realism against.

And of course, anti-realism gets purchase from the multiple historical senses of ‘common measure’ and the ease with which even believers in such a measure slide between them. The theory of rights is a good site to explore this point, given that the legal definition of a right specifies the range of entities that are entitled to a certain status. Logically speaking, a right is about the conditions of membership, which implies that we may be talking about one of two things: Either subsuming an individual under some already existing category of rights or under its own category of rights. A sense of commensurability is implied in both cases, but they are different, both politically and epistemically. In the philosophy of law, the former is associated with a *will-based* theory of rights, the latter with an *interest-based* theory (Wenar, 2015: sec. 2.2). The difference can be illustrated from the history of women’s rights, which has been portrayed as the struggle for ‘equality’ with men, where ‘equality’ presupposes some sense of common measure. But which sense exactly?

Wollstonecraft (1792), the classic late Enlightenment defence of women's equality, argued that women already meet the standard that men meet for civil rights and moreover women would help to raise the standard to which all rights-bearers – both men and women – should be held to account. The implication of her argument, for our purposes, is that women are so intrinsically entitled to human rights that without their inclusion, men are not enabled to be fully human. Instead they regress to their gender-specific propensities. This corresponds to the will-based theory of rights, and echoes of it can be heard today in projected claims that advanced androids might make for being granted rights if, Turing-style, they can perform in ways that humans normally credit as making one worthy for rights. Underwriting such claims is the assumption that, say, if 'intelligence' made *Homo sapiens* human in the first place, then the 'artificial intelligence' of androids might help to raise the presumed common standard.

In contrast, an interest-based theory of women's rights is one that stresses the differences between men and women as themselves the grounds for equal rights – namely, as equal species of the same genus 'human'. Such grounds for rights are based more on protection than empowerment, with much of the normative force of this sense of equality being applied to policing the boundaries between, in this case, men and women as matters of mutual 'respect' or 'recognition' – what the US courts used to call 'separate but equal' in civil rights cases. The political cast of the interest-based theory varies significantly depending on the domain to which it has been applied. For example, gender-divided toilets have been more acceptable than race-divided toilets. However, 'animal rights' discourse continues to be cast in this mode, whereby 'liberating' animals amounts to placing them in sanctuaries with members of their own and symbiotically related species, with strict rules on the sorts of access that humans can have to them.

Anyone with the skills of an analytic anti-realist, a continental deconstructionist or simply a social constructivist can reduce the canonical 1948 United Nations Universal Declaration on Human Rights to a site for contesting the meaning of 'human' between will-based and interest-based theories of rights. Moreover, and crucially for these readers, the Declaration does not present the two theories as either compatible or incompatible with each other. In fact, they are not presented as theories at all but as rhetorical resources, the natural outcome of a statement that had to resolve at once many different issues, each involving the appeasement of many different humans, which in turn has continued to dog the history of the document's deployment (Moyn, 2010). Under the circumstances, it would be easy to conclude with Foucault (1970[1966]) that 'humanity' is simply a historiographical mirage, a transient confluence of discourses – but not a real entity or category.

However, there is a realist take on all this, one indebted to Hegel. The will- and interest-based theories of rights may be projecting real domains that co-exist incommensurably – rather like McTaggart's two time series – in which case the task of this thing called the 'human' is to reconcile the two into some coherent whole. Of course, this is easier said than done. But from the brief sketch of the two theories of rights just provided, it is already clear that whatever sort of entity humanity is, it is not reducible to *Homo sapiens* in the sense that most of the human sciences have assumed in their history. Indeed, the human may be both more and less than *Homo sapiens*, especially if we see the 'upright ape' as simply one among many vehicles or platforms for realising

what it is to be human (Fuller, 2018). To be sure, it has been through *Homo sapiens* that the realm of the human has been so far revealed, at least as seen from the standpoint of evolutionary biology. History has shown that this revelation has been slow and painful and still not fully complete, in the basic sense that so much of the *Homo sapiens* population has yet to be treated as fully human. Yet, as we have also seen, other entities – specifically androids and animals – have been likewise caught up in our competing understandings of human, implicated as potential equals in some normatively meaningful sense (cf. Fuller and Lipinska, 2014: 129–37).

In private conversation, the Villanova University philosopher Georg Theiner, a devotee of the ‘extended mind’ thesis, has artfully crafted the term *cishuman* to describe the belief that one’s status as human or non-human is determined by one’s genetic make-up, which implies that only members of *Homo sapiens* can qualify as humans. The model for ‘cishuman’ is ‘cisgender’, which is used by the transgender community, sometimes pejoratively, to refer to people who identify their own and others’ gender identity with their birth sex. In this sense, histories of the human sciences have been so far ‘cishumanist’. However, the competing posthumanist and transhumanist narratives that lay beneath the surface of the original Husserl–Koyré *Crisis* encounter in the 1930s, and which have rumbled through the course of Western history, suggest that a reorientation to the journal’s object of study is due. Is it possible that *Homo sapiens* comes to be seen as no more than the first of potentially many platforms for realizing what it means to be human? If so, what would its history look like?

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