

An Essential Difference

Wheeler and Heidegger on the Relationship Between Science and Philosophy

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1 Reconstructing the Cognitive World

Michael Wheeler, in his book *Reconstructing the Cognitive World*, analyses the development of embedded-embodied cognitive science in the light of underlying philosophical differences about the constitution of human agency. On one side he sees orthodox computational cognitive science as holding to Cartesian conceptions of an abstract, disembodied reason deliberating over de-contextualised representations of the world. On the other side, he sees modern-day embodied-embedded cognitive scientists going beyond such Cartesianism to embrace concepts of human agency more in keeping with Heidegger's account of Dasein in *Being and Time*. By bringing to light and criticising the Cartesian assumptions of the computationalists and by pointing out and clarifying the connections between embodied-embedded cognitive science and Heidegger's philosophy, Wheeler aims to lay the "foundations of a genuinely non-Cartesian cognitive science."¹

Along the way, Wheeler argues that Heidegger is a scientific realist who holds that modern science provides genuinely objective epistemic access to independently real entities. He takes this to show that Heidegger would not object to the incorporation of his account of Dasein into the broad framework of contemporary cognitive-scientific explanation. According to Wheeler, such explanation is:

... a species of empirical explanation in which the ultimate goal is to map out the subagential elements (e.g., the neural states and mechanisms, or the functionally identified psychological subsystems) whose organization, operation, and interaction make it intelligible to us how it is that unmysterious causal processes (such as those realized in brains) can give rise to psychological phenomena that are genuinely constitutive of agency and cognition.²

Within this framework, cognitive scientists necessarily make assumptions about *what* the relevant psychological phenomena are and *how* they are constitutive of agency and cognition. It is in the formulation of these assumptions that Wheeler sees the hidden hand of Descartes and the potential for a new Heideggerian reconstruction of the area. For Wheeler, the major philosophical task is to *clarify* these assumptions, bringing into question existing orthodox views and providing a philosophical underpinning for newer embodied-embedded conceptions of agency. Evidently, this task commits Wheeler to endorsing, at least in general terms, the same framework and thus the same assumptions that underlie what he defines as the

goal of cognitive-scientific explanation. Wheeler supposes that this presents no problems for the claim that much from Heidegger's philosophy can be incorporated into a cognitive science. To support this, Wheeler adduces a number of passages from *Being and Time* in which Heidegger appears to endorse Wheeler's views on philosophy's role in identifying and clarifying the constitutive assumptions of individual sciences. And so Wheeler concludes that how he conceives such philosophical clarification is basically how Heidegger conceives it.

In this paper we shall argue that this is not correct and that the key reason for this turns on the issue of naturalism. According to Wheeler any serious attempt to achieve the defining goal of cognitive science must accept a commitment to naturalism. Yet the commitment Wheeler *appears* to have to naturalism – as we shall see, it is not quite clear what this commitment is – and certainly the unquestioned character of it, separates him from Heidegger. In consequence, the actual affinities between Heidegger and Wheeler are limited because Wheeler accepts as given something which, at least on any strong reading of it, Heidegger is concerned to dislodge. This difference entails significant divergence in how each sees the relation of philosophy to science.

2 Introducing Heidegger

Wheeler reads Heidegger as agreeing that the proper task of philosophy in relation to an empirical science (such as cognitive science) is to provide *constitutive* explanations of the target phenomena (in this case, human agency, as conceptualised within Wheeler's cognitive science framework). Wheeler supports his interpretation via an appeal to Heidegger's discussion of anthropology, psychology, and biology in §10 of *Being and Time*. Here Heidegger indicates that these empirical sciences have not arrived at an "ontologically adequate answer" as to the "*kind of Being*"³ possessed by the entity they are studying, and that they cannot uncover their own radically problematical ontological foundations on the basis of empirical work alone. So one task for philosophy is to reveal and critically examine those ontological foundations made by positive research which enable it to proceed but which it is unable to see. For Wheeler, in the context of contemporary cognitive science, this involves explicating and criticising the Cartesian constitutive assumptions that lie behind orthodox cognitive science's computationalist conception of human agency.

Heidegger also indicates a *second* task for philosophy. This is to uncover an "ontologically adequate answer to the question about the *kind of Being* which belongs to those entities which we ourselves are."⁴ Just such an answer is to be provided by the interpretation of Dasein in *Being and Time*. But Wheeler assumes that the second task is identical with the first – as a result of which the interpretation of Dasein becomes an answer to the first task, that is, it becomes an attempt to identify and unseat the presuppositions and presumptions made by a particular tradition of natural scientifically oriented psychological investigation. Moreover, Heidegger sees this second task as pointing to a third: to develop, or discover, on the basis of an adequate interpretation of Dasein, the most appropriate ontological foundations upon which the future empirical work of the positive science in question can be based. In line with the way he understands the second task and what Heidegger sees as the answer to it, Wheeler takes it that the accomplishment of the third task is at least also a task for positive research itself. Thus, he takes it that current embedded-embodied cognitive science can, as a

result of its own theoretical reflection and empirical discovery, find its appropriate ontological foundations. Indeed, he thinks it has already done so (albeit in an unclarified or impure form). Consequently, Wheeler focusses on identifying and clarifying these independently arrived at assumptions and demonstrating their affinity to Heidegger's interpretation of Dasein.

Evidently Wheeler takes what Heidegger means by the inquiry into the ontological foundations of cognitive science to be *nothing more* than an investigation into how different forms of cognitive science construe (what Wheeler calls) human agency. Only so can he assume, as he clearly does, that what Heidegger has done in his existential analytic of Dasein is what embedded-embodied cognitive science has done, however unclearly, in developing its distinctive conception of human agency. But if this is right, then Heidegger's enterprise must share whatever presuppositions underpin developments in embedded-embodied cognitive science and cognitive science generally. In this spirit, Wheeler construes Heidegger as dividing the labour between science and philosophy within a project they share in common, viz., "the study of mind":

... Heidegger's approach is to disentangle two intellectual challenges that, in the context of the study of mind, emerge as (i) the identification and clarification of the constitutive character of human agency (in Heideggerian terminology, the Being of human agents), and (ii) the empirical investigation of how human agents (and their collective social groups) work causally so as to realize that character. These two challenges correspond naturally to two different modes of explanation, that we can call the *constitutive* and the *empirical*. For Heidegger, it often seems that constitutive explanations are distinctively the business of philosophy – in particular, of a disciplined and systematic *phenomenology* – whereas empirical explanations are distinctively the business of science.⁵

But it is simply not right to construe Heidegger merely as advocating a certain division of labour between science and philosophy *within a common project*. In *Being and Time* Heidegger clearly indicates that the existential analytic of Dasein is to bring into view precisely the perspective from which "the study of mind", whether orthodox or embedded-embodied, makes its various constitutive and empirical moves. Inquiry into the ontological character of (what Wheeler calls) human agency is thus a distinctively philosophical project in its own right which *sets it apart from* all positive studies. In particular, it is a *transcendentally philosophical* project, more precisely the first preparatory move towards identifying that *Seinsverständnis* (understanding of Being) which underpins *all* positive theoretical disciplines and indeed everyday life. This understanding of Being has, according to Heidegger, been persistently misunderstood by philosophy and this misunderstanding has led to a metaphysics of nature which underpins precisely the ontological foundations of cognitive science as it has emerged and developed historically. In short, Wheeler fails to see how much more prior to, hence independent of empirical inquiry Heidegger wants to make what he understands by "the identification and clarification of the constitutive character of human agency." Heidegger sees himself as getting at a *pre-understanding* of human agency and indeed of Being which cognitive science and other kinds of human science can, as historical phenomena, only appropriate and possibly misappropriate in historically and culturally conditioned ways. This is made clear in the following introductory discussion from *Being and Time*:

The question of Being aims therefore at ascertaining the *a priori* conditions not only for the possibility of the sciences which examine entities as entities of such and such a type, and, in so doing, already operate with an understanding of Being, but also for the possibility of those ontologies themselves which are prior to the ontical sciences and which provide their foundations. *Basically, all ontology, no matter how rich and firmly compacted a system of categories it has at its disposal, remains blind and perverted from its innermost aim, if it has not adequately clarified the meaning of Being, and conceived this clarification as its fundamental task.*⁶

In embarking on his existential analytic of Dasein, Heidegger means to gain access to our understanding of Being as such, an understanding we are supposed to have prior to *any* specific theoretical enterprise or indeed practical undertaking. And we access this understanding of Being as such in order to answer the question of Being, that is, in order to provide an account of the different ways Being is temporally schematised or *applied* across all modes of engagement with entities. To provide such an account is to show how the *regional* ontologies of specific disciplines are possible, and cannot, therefore, be a move made within any one of these regional ontologies. Crucially, Heidegger sees the task he characterises as the question of Being as providing the Archimedean point for a much more a priori, more philosophical clarification of ontological foundations than is consistent with Wheeler's more even-handed conception of the relation between philosophy and cognitive science. And, implicitly at least, this clarification draws into question those naturalist commitments which for Wheeler are beyond question.

3 Wheeler's Non-Reductive Naturalism – Stronger and Weaker Readings

In the first chapter of *Reconstructing the Cognitive World*, Wheeler declares a basic commitment to naturalism, which he defines as the position:

(i) that physicalism is true, and (ii) that philosophy is continuous with natural science. [...] In my book, physicalism amounts to the ontological claim that there is ultimately nothing but physical stuff. It does not impose the additional explanatory condition that every worldly phenomenon be ultimately explicable by physical laws. [...] I read continuity with natural science in the weakest possible way, that is, as mere *consistency with* natural science, a reading that makes room, in principle, for multiple modes of explanation. Thus the view I advocate does not demand reductionist explanations of psychological phenomena.⁷

To this Wheeler adds the principle that “if there is a clash between philosophy and some *final* natural science, then it is philosophy that should give way.”⁸ Wheeler provides no argument for the truth of naturalism and in particular, for the truth of physicalism as thus characterised. Rather, he points to the wide acceptance of naturalism amongst other contemporary philosophers and researchers in cognitive science. In addition, he regards as fairly evident that all conceptions which, by these lights, would count as non-physicalist, hence non-naturalist, resort to ‘magic’ and cannot, therefore, be taken seriously.

So Wheeler's account of naturalism is very cursory. This is remarkable given Heidegger's explicit rejection of what *he* understands by naturalism.⁹ Presumably, Wheeler's response

would be that his naturalism is non-reductionist, and so not of the kind the Heidegger was rejecting.¹⁰ But what does it mean to say, in a *non*-reductionist spirit, that “there is ultimately nothing but physical stuff”? It is not enough simply to deny, in the manner of Dennett and others, the existence of bridging laws. This only tells us what a non-reductionist naturalism is *not*, whereas we want to know it *is*.

For our purposes, the crucial claim in what Wheeler understands by naturalism is the first, namely, that “there is ultimately nothing but physical stuff.” Wheeler calls this physicalism and we will adhere to that usage here. Now it is not clear just what physicalism, thus understood, comes to. For there are stronger and weaker readings of the claim that there is nothing but physical stuff. On the stronger reading, it is a claim of supervenience in the strict sense, namely, that all empirical reality is ‘at bottom’ nature, where nature is understood to be empirical reality as it reveals itself in and through natural science. More precisely, it is a claim that all relations of cause and effect must satisfy some description in the language of a true and presumably complete physics or at least some natural science concerned with material constitution.¹¹

Yet it is not clear that Wheeler wants to understand the claim that there is only physical stuff as a commitment to supervenience in this strong sense. For at times, he seems *not* to want to maintain that physical science gives us an *ultimate* access to the real, as when he agrees with Dreyfus that science “does not have special access to ultimate reality.”¹² This could be taken as denying that it makes sense to speak of there being any such thing as *ultimate* reality. If so, then the physicalist and naturalist claim would merely come to this: whatever occurs in space and time and can play an efficiently causal role in the world has an underlying material constitution which accounts for the causal propensities and superficial surface properties it displays in everyday pre-theoretical perceptual experience. One can consistently maintain this without insisting that how things are and evolve across time at the level described and explained by the science or sciences of material constitution fixes how things evolve across time at higher levels of description and explanation. However, in holding to this weaker reading of what Wheeler regards as the physicalist claim one pays a price many would regard as too high: one must deny an ideal of natural science first writ large, or at least most efficaciously, by Descartes, namely, that empirical reality or nature is unified at the level of material constitution, such that in principle some science or sciences of material constitution could grasp the whole.

4 A Heideggerian Physicalism?

Since it is not clear what reading Wheeler prefers, let us change tack and ask which reading *Heidegger* would prefer. Heidegger never provides a straightforward account of how ‘form’ relates to ‘matter’, that is, of how higher level kinds, properties and relations, in particular, those of everyday pre-theoretical life, relate to the material constitution of the entities which bear them. In particular, he provides no account of how to conceive the relation between events occurring in the brain and events taking place at the pre-theoretically accessible agential level, which belongs to Dasein’s being-in-the-world. Nonetheless, a substantial hint is provided by the following passage:

What happens here, that the tree stands there to face us, and we come to stand face-to-face with the tree? Where does this presentation take place, when we stand face-to-face before a tree in bloom? Does it by any chance take place in our heads? Of course, many things may take place in our brain when we stand on a meadow and have standing before us a blossoming tree in all its radiance and fragrance – when we perceive it. In fact we even have transforming and amplifying apparatus that can show the processes in our heads as brain currents, render them audible and retrace their course in curves. [...] But ... while science records the brain currents, what becomes of the tree in bloom? What becomes of the meadow? What becomes of the man – not the brain but of the man, who may die under our hands tomorrow and be lost to us, and who at one time came to our encounter? What becomes of the face-to-face, the meeting, the seeing, the forming of the idea, in which the tree presents itself and man comes to stand face-to-face with the tree?

It will be said in rebuttal: What is the use of such questions concerning a state of affairs which everybody will in fairness admit immediately, since it is clear as day to all the world that we are standing on the earth and, in our example, face-to-face with a tree? But let us not slip too hastily into this admission. [...] For we shall forfeit everything before we know it, once the sciences of physics, physiology, psychology, not to forget scientific philosophy, display the panoply of their documents and proofs, to explain to us that what we see and accept is properly not a tree but in reality a void, thinly sprinkled with electric charges ... that race hither and yon at enormous speeds. It will not do to admit, just for the scientifically unguarded moments, so to speak, that, naturally, we are standing face to face with a tree in bloom, only to affirm the very next moment as equally obvious that this view ... typifies only the naïve, because pre-scientific, comprehension of things. For with that affirmation we have conceded something whose consequences we have hardly considered, and that is: that those sciences do in fact decide what of the tree in bloom may or may not be considered valid reality. Whence do the sciences – which necessarily are always in the dark about the origin of their own nature – derive the authority to pronounce such verdicts? Whence do the sciences derive the right to decide what man's place is, and to offer themselves as the standard that justifies such decisions? And they will do so just as soon as we tolerate, if only by our silence, that our standing face-to-face with the tree is no more than a pre-scientifically intended relation to something we still happen to call "tree."¹³

Here, Heidegger is insisting that the perceptual experience we are having of the tree in bloom is not to be identified with anything literally in the head; it is Dasein that undergoes such perceptual experience and not the organ in Dasein which is causally responsible for these events.¹⁴ In addition Heidegger is insisting, particularly in the second paragraph, that we *not* regard nature in the everyday sense as an appearance behind which there lurks true reality, "a void, thinly sprinkled with electric charges ... that race hither and yon at enormous speeds." To do this is to concede that the sciences of material constitution have the right to decide on what "may or may not be considered valid reality." Furthermore, Heidegger is saying that science will claim this right for itself *if we let it*. So science does not *automatically* claim this right, that is, it is not *essential* to science to do so. Rather, science only thus elevates itself

because (a) there exists in the wider culture the *philosophical*, indeed *metaphysical* view that the tree in bloom, in its capacity as a tree in bloom, is mere appearance supervening upon underlying microstructure; and (b) philosophy itself fails to reflect critically upon this, its own product, the modern metaphysics of nature, or what Heidegger, in *Being and Time*, calls Descartes' ontology of the world.

That Heidegger consistently adheres to these views is shown by a much earlier text, viz., the WS 1929/30 lecture *The Fundamental Concepts of Metaphysics*. Here, Heidegger rejects the view that living things without minds are automata whose principles of operation are resolutely those uncovered by 'mechanistic' physics and chemistry:

[What] the struggle within biology against physics and chemistry really means is that "*life*" as such cannot in principle be grasped from within the perspective of these disciplines. Yet this also implies that we cannot start by explaining "living substance" in physico-chemical terms, only to find ourselves in the embarrassing position of having to admit some other factor later on when our calculations fail and we are left with an inexplicable residue. On the contrary, the delimitation of life must be accomplished on the basis of the fundamental character of living beings themselves as something that cannot be explained or grasped at all in physico-chemical terms. The task confronting biology as a science is to develop an entirely new projection of the objects of its enquiry. (Expressed from another point of view, which is not necessarily identical with what we have just said, the task today is to liberate ourselves from the mechanistic conception of life.)¹⁵

It would be wrong to object that Heidegger's rejection of a physico-chemical explanation of life presupposes a false identification with an earlier, discredited, overly mechanistic conception of life. For this would be to misunderstand what is actually being said. Heidegger rejects the idea of understanding "living substance" in "physico-chemical terms" because he thinks it leaves "an inexplicable residue." In other words, there is an explanatory deficit and it is this explanatory deficit which leads vitalist biologists *wrongly* to posit some vital force or entelechy.¹⁶

What, then, is Heidegger actually saying if he concedes to vitalist biology the idea of an explanatory deficit while at the same time rejecting their response to it? The clearest and least mysterious answer is to read this and similar passages as firstly an explicit rejection of physicalism in the strong sense and secondly an implicit endorsement of physicalism in the weak sense. Heidegger is thus to be read here as intimated above, namely, as endorsing the view that at higher levels of description, certain biological notions denote strongly emergent realities. So, while possession of a particular material constitution is sufficient for an entity to belong to the extension of the notion of a strongly emergent biological reality, such a reality plays an ineliminable causal role in how events involving it evolve over time, such that the full causal story is not to be had at the level of material constitution. Note that while this view involves no appeal to vital forces, entelechies or final causes, it nonetheless captures the ultimately Aristotelian idea that certain pre-theoretical, in particular, *perceptible* identities, properties and relations are irreducibly implicated in at least some of the transactions making up the one causal web of reality.

Now one might seek to domesticate what Heidegger says here by arguing that it is consistent with a stronger *metaphysically naturalist yet non-reductive* physico-chemical account of the biological, an account that parallels Wheeler and other's non-reductive cognitive-scientific account of the psychological in relation to the physiological. But this domestication does not do justice to the claim Heidegger makes that an entirely new way of thinking about life is needed. This "entirely new projection" centres on the "essential wholeness" of the living being as an *organism*:

The fundamental thesis here is that everything that lives is an *organism*. [...] And this also implies that the concept of a "living substance," a vital mass or "life stuff," is a meaningless one. For the idea of "stuff" or "substance" in this sense specifically denies the character of the living being as an organism. [A living being's] organismic character is what determines the unity of this particular living being in each case. The unit of life is not the cell. The multicellular living being is not, as has been suggested, a community of cells. On the contrary, both unicellular and multicellular living beings alike possess a *unity* of their own in each case, that is, they have a specific *essential wholeness* by virtue of the fact that they are *organisms*.¹⁷

Initially, this conception of the organism appears analogous to Wheeler's conception of the human cognitive agent: both stress the "essential unity" of what they denote. That, however, the analogy is at best superficial becomes apparent in Heidegger's attack on the idea that an organism can be considered as a machine with additional "supra-mechanical functions":

[Equipment] is what it is and in the way that it is only insofar as it is a *product* of human activity. And this implies that such production of equipment is only possible on the basis of what we have called *world-formation*. [...] If this is the case, then it is questionable whether we should attempt to grasp organisms as instruments or machines. And if this approach is excluded in principle, then it is also impossible to endorse that procedure in biology which begins by treating the living being as a machine and then goes on to introduce supra-mechanical functions as well. This procedure certainly does greater justice to the manifestations of life than any purely mechanistic theory. Yet it still misrepresents the central problem which we are repeatedly forced to confront: that of grasping the original and central character proper to the living being.¹⁸

Note carefully the conceptual anatomy of the view Heidegger is rejecting: it *starts with* a 'mechanical' explanation of the organism (corresponding to Wheeler's physical and functional understanding of the subagential level) and goes on to posit supra-mechanical biological activities and dispositions to such activities (corresponding with the unreduced psychological/intentional phenomena of the agential level). The idea appears to be as follows: viewed from a strictly causal perspective, the living being is indeed a machine; precisely for the reason one can *begin* "by treating the living being as a machine." But to treat the living being as a machine leaves out of the picture all those activities and dispositions to activity which distinguish a living being as living – this because such biological features are not reducible to, hence captured by, a characterisation of the living being as a machine. So one must *go*

on to these biological features precisely as supra-mechanical functions. If this is correct, then the idea Heidegger is here describing *and rejecting* is precisely the thesis that biological features strictly supervene on the ‘mechanical’, that is to say, on the physical, chemical and/or physiological. And so Heidegger appears to be describing *and rejecting* a biological analogue of that conception of the cognitive and psychological which sees them as strictly supervening on the physico-physiological even as it rejects any reductive account of them.

5 Seeing the Essential Difference

In initially taking Heidegger’s meta-philosophy seriously, we have argued that he sees philosophy as playing a much more autonomous and radically critical role *vis-à-vis* such disciplines as cognitive science than Wheeler appreciates. There are two crucial aspects to this meta-philosophy: first, the claim that the central task for philosophy is the so-called question of Being; and second that ontology is to be done in transcendental philosophical fashion. Accepting this second claim is a necessary condition for accepting the first, since the second claim is a necessary condition for recognising that there can be different ways in which the same set of formal ontological notions can be applied, depending on the type of entity, and hence the type of comportment at issue. If this is accepted, then one can envisage a philosophical unpacking of these different ways of applying or *schematising* formal ontological notions. Just this philosophical unpacking is the addressing of the many ways in which, as Aristotle put it, Being can be said. Evidently, given the underlying conception of what ontology is, this unpacking will have to proceed by undertaking an ontology of the very subject for which ontological categories and concepts constitute enabling conditions. For just this *fundamental* ontology identifies what forms of self-comportment towards entities there are and what their unity is.

Now Heidegger claims that because the Western tradition has not understood the nature of ontology, it has failed to see that Being can indeed be said in many ways. Just this has generated a philosophical tradition characterised by the illegitimate totalising and hypostasising of theoretical knowing and in particular of the specific ontological assumptions of historically given forms of theoretical knowing. The latest phase in this tradition is that *philosophical misinterpretation* of what science can accomplish which constitutes the modern metaphysics of nature. This metaphysics begins with Descartes but it culminates, once the theological advantages of dualism no longer seem so overriding, precisely in physicalism and naturalism *in the strong sense*. Given this, transcendental ontology, as Heidegger conceives it, acquires a cultural significance: it becomes the critique of a culturally powerful ideology, in particular, of the philosophical doctrine of naturalism and the cultural phenomenon of scientism. As a result of this self-critique, philosophy rescues human existence, not the least science itself, from philosophical misappropriation. Transcendental ontology thus passes over into what Heidegger in *Being and Time* calls the phenomenological de-struction of the history of ontology and later the history of Being.

In conclusion let us note that while we cannot determine here whether there could be a truly Heideggerian cognitive science and what it would look like, one thing is clear: Heidegger would not have *started* with a physicalist ontology, within which an account of Dasein as human agency would have been *secondarily* inserted at an agential level floating in an unspecified unreduced way above the physical. He would rather have started with Dasein and its

everyday world and regarded functional and physiological characterisations of Dasein as offering partial views of the causal processes materially sufficient for, but not totally determining of, Dasein's ongoing rationally self-regulating comportments towards entities within and of the world. If, however, this is so, then Wheeler's reconstruction of cognitive science cannot be regarded as truly Heideggerian. It is rather the introduction of Heideggerian concepts into a framework which is ultimately foreign to Heidegger. This introduction has undoubtedly had some beneficial consequences, for example, the critique of orthodox cognitive science and AI, and to this extent it has been productive. Even so, it must ultimately be described as a productive *mis*understanding.

Notes

¹(Wheeler, 2005, p. 16)

²(Wheeler, 2005, p. 127)

³(Heidegger, 1962/2008, H 50, p. 75)

⁴(Heidegger, 1962/2008, H 50, p. 75)

⁵(Wheeler, 2005, pp. 125–126)

⁶(Heidegger, 1962/2008, H 11, p. 31)

⁷(Wheeler, 2005, p. 5)

⁸(Wheeler, 2005, p. 6)

⁹See, for example, *The History of the Concept of Time*, §13 (Heidegger, 1982, H 160, pp. 115–116) and *The Basic Problems of Phenomenology*, §9 (Heidegger, 1992, H 70, pp. 51–52)

¹⁰There is nothing new about non-reductive naturalism, of course. Both the South-West German and the Marburg neo-Kantians were non-reductive naturalists, this notwithstanding a tendency to attack naturalism, hence to tie the term to what McDowell calls crass naturalism.

¹¹We take it that the naturalist intuition can be satisfied without the naturalist having to insist on the reducibility of such sciences of material constitution as genetics, molecular biology and chemistry to physics.

¹²(Wheeler, 2005, p. 155)

¹³(Heidegger, 1968/2004, pp. 42–43)

¹⁴Note that in saying this Heidegger is not necessarily denying the perceptual experience is a ‘mental event’ in that perfectly legitimate sense he takes from Husserl: it is an intentional experience (*intentionales Erlebnis*) whose internal intentional structure one gets at through first person phenomenological reflection on it.

¹⁵(Heidegger, 1995, H 278, pp. 188–189)

¹⁶See (Heidegger, 1995, H 339, p. 232). Heidegger clearly rejects vitalism – see (Heidegger, 1995, H 318, p. 217 and H 326, p. 223)

¹⁷(Heidegger, 1995, H 312, p. 212)

¹⁸(Heidegger, 1995, H 313, pp. 213–214)

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