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Heidegger on Nature

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ABSTRACT

The primary purpose of the paper is the broadly exegetical one of explaining and connecting Heidegger's many remarks, made in several different contexts of enquiry, on nature. The three main contexts are those of ontology, scientific methodology, and technology. After showing how Heidegger's central theses in these contexts are related to one another, I argue, in the final section, that his observations on scientific method are pivotal. Unless these are secured, his further claims about ontology and technology lose their essential support.

KEYWORDS

Environment, nature, science, technology, Heidegger

CONTEXTS OF ENQUIRY

To many readers of *Environmental Values*, Martin Heidegger (1889–1976) is well known as almost the only twentieth century philosopher of the very first rank to have addressed the issue of what he called 'the devastation of the earth' and hence to have been concerned with nature in the sense, roughly, of the natural environment. His voluminous writings, however, engage with many other issues subsumable under the heading of 'philosophy of nature'. In particular, he is a main critic not only of what he sees as our prevailing attitudes towards the natural environment, but of the predominant conception of nature in the modern world. In this paper, I hope to identify and explain his criticisms, and to demonstrate the close connections between them which Heidegger certainly took there to be. Only in the final section do I venture beyond this broadly exegetical aim, arguing, in a way that Heidegger never, as far as I know, explicitly does, that central to his whole critique is his philosophy of the natural sciences.

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The main exegetical aim may be a relatively modest one, but it is not easy to execute. Heidegger wrote a great deal about nature, often in an inimitably dense style, and there occur important shifts in his thinking about nature. What complicates the matter most, however, is that Heidegger discusses the topic(s) of nature in a variety of contexts of enquiry. It is important to sort out these different enquiries, related though Heidegger himself certainly takes them to be. I shall label the three main contexts in which Heidegger's remarks are made the *ontological*, *methodological*, and *technological* ones.

When enquiring into nature in the first, ontological, context, Heidegger's concern is with the kind of being that nature possesses and how this differs from the kind enjoyed by, say, human beings or artefacts. For our purposes, little or nothing is lost, I think, by construing this enquiry into the being of nature as one into *conceptions* of nature – in particular, into the question of which, out of many conceptions of nature that have flourished over the centuries, is the 'primordial' or fundamental one, and which 'derivative' or secondary. Heidegger's central claim, in this context, is that the currently prevailing conception of nature – the dominant interpretation, that is, of the kind of being it has – is derivative, not 'primordial'.

In the second, methodological, context, Heidegger's concern is with the status and self-understanding of the natural sciences, especially of physics, which he regards as paradigmatic of these sciences in modern times. He is concerned, in particular, to question the familiar perception that, in virtue of their method, the natural sciences are, or one day will be, providing a uniquely true account of how nature fundamentally, and independently of any human perspective, is. Heidegger's central claim in this connection is that the sciences do nothing of the sort. Rather, science represents only 'one way ... in which all that is presents itself' (QCT 156).

In the final, technological, context, Heidegger's concern is to expose what he takes to be the prevailing way in which, in modernity, nature is 'revealed' to us. 'Technology' is his name for this 'way of revealing'. His main claims in this context are that this way of revealing is a peculiarly partial and impoverished one, and that, worse still, it represents a 'monstrous' and 'supreme danger', being responsible, in effect, for an increasing 'devastation of the earth' and for our contemporary 'distress' (QCT 26ff).

While these are very different contexts of enquiry, it is clear that Heidegger regards them – and the main points he makes in connection with each – as intimately related. It is, he argues, because a fundamental, 'primordial' conception of nature has been 'forgotten' and subordinated to a quite different, 'secondary' one that the current self-understanding of the sciences, as arbiters of how nature truly is, has been made possible. Both this 'forgetfulness' and the ensuing prestige of the scientific conception of the world have, in turn, served to foster the 'monstrous', technological way of revealing nature. But the traffic is two-way. The current hegemony of the technological way of revealing reinforces

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the natural sciences' own understanding of what they achieve, and this, in turn, guarantees a more complete 'forgetfulness' of that primordial notion of nature that has succumbed to the derivative one assumed by the sciences.

In the following sections, I elaborate on the main points that Heidegger makes in each context of enquiry, comment more fully on the connections he discerns between these points and, finally, argue that it is his reflections on the status of the natural sciences which are pivotal since, unless these are well taken, the claims he makes in the other two contexts lose all or much of their grounding.

CONCEPTIONS OF NATURE

In writings stretching over forty years, Heidegger consistently maintains that the modern conception of nature, which has become increasingly entrenched since its origins in the works of Galileo and Descartes, is a derivative or 'privative' one – the result of a severe abstraction from conceptions closer to our everyday experience of and engagement with the world. This modern conception is that of nature as *res extensa*, as a 'world-stuff' – as, for example, 'matter endowed with force'. (See, especially, BT 122ff.) While accounts of matter and force may have become more sophisticated since the seventeenth century, the general picture is still the Cartesian one of nature as a complex of material entities behaving in accordance with 'laws of nature' or, at any rate, reliable statistical regularities.

For Heidegger, the entrenchment of this conception is no accident, and is not due, simply, to the striking predictive and explanatory successes of the sciences that embrace it. It is the result, rather, of an epistemological turn taken by Descartes and most later philosophers that privileges a certain type of human understanding – knowledge in the 'spectator sense' (BP 276): the kind of understanding, that is, which is obtained through detached, objective observation and analysis and which, at a sophisticated level, takes the form of *theories*. With this turn, it is inevitable that understanding of nature should be construed as theoretical knowledge of an objective, material realm standing over against us spectating subjects.

In *Being and Time*, Heidegger describes the world or nature so construed as something 'present-at-hand', and argues that it is parasitic on a quite different mode of understanding the world, as something 'ready-to-hand' or 'equipmental' (BT 97). Because it is parasitic, the modern conception cannot, as its champions maintain, be the fundamental or 'primordial' one. This primary mode of understanding is an intelligent 'coping' or 'engaging' with things in so far as they are significant in our practical activities. For example, our primary understanding of a hammer is not that of the mere spectator, staring at an object with such-and-such properties of size, shape and colour, but the 'concernful' understanding of an agent for whom the hammer plays a role in activities like

building. The world as we experience it in everyday life is, in effect, a giant complex of 'equipment', a totality of 'significance', in which the various items we encounter – hammers, nails, tables and so on – owe their identity not only to their relations to one another, but ultimately to human purposes and endeavours. The world as 'world-stuff' or material substance is a notion we arrive at only 'later', when we stand back from our engaged activities and 'stop and stare' at the things around us.

But what of the natural, as against the artefactual, world? For Heidegger, the constituents of nature, too, are originally experienced or encountered as 'equipment', ready-made equipment, as it were – the wood, for example, as a forest of timber, and the south wind in relation to activities like farming (as a sign of rain, say, or a threat to a crop). More generally, 'our concern discovers nature as having a certain direction' relative and relevant to our practical projects (BT 100). The natural environment must first be experienced as it is by the farmer, forester or hunter before it can become an object of detached, spectatorial enquiry for the biologist or zoologist. This priority of 'concernful', engaged experience, it is important to stress, is not, for Heidegger a merely empirical matter. Unless things like hammers, trees or winds first 'lit up' for us as significant entities in relation to our practices, they would not be 'accessible' to thought and enquiry (BT 122). The great error of the Cartesian privileging of a spectatorial view of the world and nature is that it ignores how these ever became accessible to the spectator. Nature as it displays itself to the spectator must already have displayed itself in a quite different mode for there to be anything to spectate.

In *Being and Time*, then, two conceptions of nature, a 'primordial' and a 'privative' one, are described: nature as a totality of ready-made 'equipment', and nature as a 'world-stuff' set over against detached human cognition. In fact a third conception briefly pops up when Heidegger refers to 'the nature which "stirs and strives", which assails and entralls us' (BT 70). Heidegger is aware, surely, that these descriptions scarcely apply to nature either as so much ready-made equipment or as 'matter endowed with force'. It is not, however, until several years later that Heidegger returns to and elaborates this third conception. And when he does, it comes to occupy a central place in his thinking – in effect replacing the 'equipmental' conception as the 'primordial' one on which our modern, Cartesian conception is parasitic. In such later writings as *An Introduction to Metaphysics* and *Contributions to Philosophy* this 'primordial' conception is identified with what Heidegger takes to have been the pre-Socratic Greek notion of *physis*. In experiencing nature as *physis*, the Greeks encountered it as a 'process of arising', as a 'self-blossoming emergence' or 'upsurging presencing' for us of the natural world (see, eg, IM 14-15). In the terminology of *Contributions*, nature qua *physis* is not the natural world itself, but the 'event', 'gift' or 'source' whereby a natural world becomes present for human beings to experience. 'Natura' and 'nature', while purporting to translate the Greek term *physis*, in effect refer to the outcome of this 'event', not the 'event' itself, and

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hence to what becomes present, not to the ‘presencing’ which enables things to become present.

In calling nature qua *physis* ‘primordial’, Heidegger does not mean, simply, that it is the earliest conception. The priority is also a conceptual one: unless nature were first experienced as *physis*, the conception of nature as a ‘world-stuff’ could never have arisen. It is only because of the wonder and awe that nature qua *physis* inspires – because of a vision of nature as something that ‘assails and enthralls’ – that enquiry into the natural world, the determination to understand it and explain its workings, became a possibility for human beings.

The question arises of the relationship between the ‘early’ and ‘later’ accounts of the ‘primordial’ conception of nature. Heidegger’s own tendency was to resist suggestions that his later thought represented a radical ‘turn’ away from the positions taken in *Being and Time*. Despite that, it is difficult not to regard the ‘equipmental’ account in that book as being, from the later point of view, only an articulation of that particular, ‘privative’ and historically late conception of nature integral to technology. (See the section TECHNOLOGY AND NATURE below.) Be that as it may, and notwithstanding the salient differences between the ‘early’ and ‘later’ views on the ‘primordial’ conception of nature, two convictions persist throughout his writings. The first is that our modern, Cartesian conception of nature is a derivative one, parasitic either upon a pragmatic conception of nature as ready-made ‘equipment’ or the Greek conception of nature as ‘self-blossoming’ *physis*. Second, Heidegger consistently maintains that the ‘primordial’ conceptions are of nature as something *essentially* related to, and hence requiring, human existence – whether as so much ‘equipment’ in relation to our practical purposes, or as a mysterious ‘presencing’ that requires us, as ‘the shepherds of being’ (LH 239), to be the recipients of that ‘presencing’. Without that reception, nothing would ever become present to or for anything. (In part, for Heidegger, this is because beings, in order to be anything, must pass through, as it were, the reception hall of language. Language, he famously wrote, is ‘the house of Being’ (LH 239) – a descendant of the insistence, in *Being and Time*, that nothing can be that could not be taken up into ‘discourse’.) These two abiding themes should be borne in mind during the remaining discussion.

THE STATUS OF NATURAL SCIENCE

The natural sciences, as well as those that model themselves on these, are, Heidegger holds, ‘utterly incapable of gaining access ... to their [own] essence’ (QCT 177) – to, that is, the real status of their assertions and theories. Indeed, Heidegger continues, the typical self-understanding of the sciences is entirely mistaken. Champions and practitioners of the natural sciences standardly take scientific assertions and theories to be, or at least to approximate to, truths about ‘nature as such’ – nature as it anyway is, quite independently of human interests,

conceptions and perspectives. What this self-understanding ignores, Heidegger argues, is that modern science is thoroughly shaped by certain methodological *decisions*, ones that nothing in 'nature as such' dictates. The fundamental decision on which modern science rests was to count only what is measurable and quantifiable as the proper field of scientific enquiry and description. This, in effect, means attributing to 'nature as such', when it is identified with what science attempts to delineate, only those features which are thus measurable and quantifiable.

Natural science rests, then, upon a 'stipulation in advance', upon 'the projection [onto nature] of a fixed ground-plan'. Far from science discovering how nature in reality is, nature simply 'reports back' to scientists what has already been settled by the adoption of this a priori 'ground-plan' (QCT 118ff). It is not, for example, a triumphant scientific discovery that 'spatio-temporal magnitudes of motion' belong to 'nature as such', while colours, meanings and emotions, say, belong elsewhere – to subjective experience of nature, for example. Rather, this is the inevitable consequence of the pre-emptive stipulation to countenance, as belonging to the real furniture of nature, only what is measurable and quantifiable. This, as Heidegger sees it, is obvious when one considers the strategy of Galileo and Descartes in expelling the secondary qualities from the domain of nature. For that expulsion was, of course, the consequence of a priori reasoning, not of experimental enquiry.

Heidegger is unimpressed by the familiar suggestion that the remarkable explanatory successes of modern science provide a good reason for holding that it yields an account of how nature anyway, or in itself, is. Scientific explanations, Heidegger argues, rest upon the establishment of 'causalities': these are, 'strictly speaking ... "if-then" relationships in the form of when-then' ones (CP 102). Science has indeed been successful in explaining events by subsuming them under such general 'when-then' regularities. One may, for example, successfully explain, in that sense, why the water in the kettle just boiled, by subsuming the event under a 'when-then' regularity, and also explain some regularities by subsuming them under wider ones. But before hastily concluding, from such successes, that the sciences are delineating 'nature as such', we should bear in mind that it is, once more, a methodological *decision* to count only explanations of this 'when-then' variety as authentic.

The explanatory success of natural science is success, therefore, only as measured by a yardstick that science has itself determined. Historically, there have been different yardsticks. For some older thinkers, like Aristotle, things are comprehensively explained only when their telos – the end-state towards which they naturally tend – is identified. For others, like Leibniz, things are fully explained only when their necessity within a divine dispensation is exhibited. Heidegger's point is that it is not empirical, scientific enquiry itself which has shown such yardsticks to be chimerical. Instead it has been shifts in metaphysical predilections, resulting in the stipulation of a certain notion of explanation,

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which have been responsible for the atrophy of those older concepts of explanation. Lurking behind that point is one that Heidegger inherits from his teacher, Edmund Husserl. It is changes in what Husserl calls the 'life-world', which is 'the meaning-fundament of natural science' – shifts in human ambitions and interests, in people's sense of what matters, in their comportment towards the natural world – that have been responsible for the methodological determinations which now privilege the explanations and accounts of nature furnished by natural science.

TECHNOLOGY AND NATURE

Heidegger's remarks on technology will, to repeat, be familiar to many readers of this journal, so I can be fairly brief in rehearsing them. His account of technology in effect elaborates aspects of the claim made in *Being and Time* that nature is 'primordially' experienced as 'ready-to-hand' or 'equipmental' – the forest, say, as potential timber. (The aspects, as indicated by that particular example, are those related to the more obviously 'economic' and utilitarian dimensions of 'equipment'.) For 'technology', in his sense, refers not to the use of tools and machinery in productive activity, or to applications of technical knowledge to such activity, but to a 'way of revealing' or 'rendering things manifest' – of experiencing and interpreting – the natural world which is paradigmatically manifested by technology in those familiar senses (QCT 5). In the technological way of revealing, specifically, the natural world is experienced or encountered as so much 'standing-reserve' – something 'on tap' for us, to be drawn on and from so as to serve our practical needs. Where such a way of revealing predominates, the results are, for example, that 'the earth ... reveals itself as a coal-mining district, the soil as a mineral deposit', and the river Rhine as a 'water-power supplier' (QCT 14ff).

There is, however, an important difference between the earlier discussion of 'equipment' and the later one of 'standing-reserve'. That the natural world is 'primordially' encountered as 'equipment' is advanced, in *Being and Time*, as an abiding and necessary aspect of human existence. In the later essays, on the other hand, our encountering or revealing nature in the pragmatic mode of technology is taken to be a distinctively modern phenomenon, the culmination, as Heidegger sees it, of 'the history of metaphysics'. By this, he means an ever-increasing tendency to view and understand the world 'in relation to man' as the being who 'decide[s] ... how [other] beings appear' (LH 234). The tendency is towards, eventually, 'the impression ... that everything man encounters exists only in so far as it is his construct' (QCT 27). It is, moreover, because the technological way of revealing is just one – the latest – possible way, and not something essential to human experience in every epoch, that Heidegger is now able to regard it as a 'monstrous' way. In so regarding it, he is not suggesting

that it is mistaken to view the natural world as 'standing reserve'. Plainly, a certain region may be a coal-mining district or a river may supply power, and there can be nothing incorrect in so recognising it.

Technology is monstrous, rather, in that it 'drives out every other possibility of revealing', to such a degree that it is no longer appreciated as just one possibility (QCT 27). So, for example, in the modern world, even 'aesthetic' experience of nature is technological, with the river Rhine, say, being put on tap 'for inspection by the tourist industry' so as to yield its quota of 'aesthetic' sensations. Other historical ways of revealing did not possess this all-devouring character: a flower, say, could be revealed as something of beauty, but also as something 'blossoming forth' from a mysterious process of *physis*, and as something with a significant role in a people's sense of their community. As such, technology is at the farthest possible remove from that stance towards the natural world which 'lets beings be': for to 'let be' is, precisely, to stand open to a full range of ways in which things may be 'rendered manifest' to us.

From this hegemony of technology, further developments of a monstrous kind ensue. For one thing, the technological view of nature comes to encompass human beings, so that 'man himself will have to be taken as standing-reserve' (QCT 27). Human beings become 'manpower', 'human resources' and the like. And human nature itself is in danger of being put on tap. Anticipating the ambitions of some of today's biotechnologists, with their readiness to 'shunt around' human genetic material, Heidegger writes of an 'attack upon the nature of man compared with which the explosion of the hydrogen bomb means little' (DT 52). Even if their genes have not yet been shunted around, in a world dominated by technology, people themselves certainly have been – 'driven from their native soil [and] resettled in the wastelands of industrial districts' (DT 48). In that, and other respects, the hegemony of technology brings with it the modern 'destiny' of 'homelessness'. Again, with nature 'dimmed down' or levelled down to standing-reserve, it is, so to speak, without the resources to resist the modern urge to 'order' it and 'challenge' it forth to to produce a 'maximum yield at minimum expense'. Hence the process of a 'devastation of the earth', appeals against which in the name of the integrity or meaning of natural things sound, to the modern ear, only hollow or quaint.

INTERCONNECTIONS

Such, taken relatively separately, are Heidegger's observations on nature made in the three contexts of his enquiries into the ontology of (or conception of) nature, the methods and status of the natural sciences, and the character of technology. As noted earlier, Heidegger takes there to be intimate connections between these observations. For example, the hegemony of technology, as I put it, reinforces the sciences' own self-understanding of their deliverances, which

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in turn reinforces the 'forgetfulness' of a more 'primordial' conception of nature than the natural scientific one.

I devote this section, however, to considering the complaint that, far from being intimately connected, Heidegger's observations are at odds with one another. Specifically, it is alleged, the technological stance towards nature and the natural scientific conception of it can hardly reinforce one another, since they are in opposition. From the standpoint of the former, the natural world is revealed in purely pragmatic, 'equipmental' terms; whereas, according to the scientific conception, nature is what is revealed to detached spectatorship, an 'objective' entity which is what it is quite independently of human interests and perspectives. So how, for instance, can a view of the forest as next year's timber supply reinforce and be reinforced by a view of it as so much 'matter endowed with force'?

To understand Heidegger's response to this charge, we need to consider his remarks on the relationship of science and technology. These are directed, typically, against the usual view that technology is applied science. While it is true that 'modern technology' developed in the eighteenth century, so that it is 'later', on a 'chronological reckoning', than modern (Galilean) physical science, it is nevertheless 'historically earlier' when considered from 'the point of view of the essence holding sway within it' (QCT 23). More succinctly, and crudely, science is not independent of technology, but an 'offshoot of a ... proliferation of tool-preparation' (CP 50). His point, here, is not the empirical one that, as a matter of fact, modern physics required the stimulus of burgeoning technological activities in order to take off and develop. Nor is it the cynical one that scientific research at any given time, however 'theoretical', is always shaped and directed by contemporary technical and economic needs. Heidegger is quite happy to accept that much scientific research is undertaken 'for its own sake', or out of sheer 'curiosity'.

The key to the point Heidegger does want to make lies in his reference to 'the essence holding sway within' technology. That essence is the ordering, challenging stance towards the natural world from which it is addressed as 'standing-reserve', as something to be made to yield what we require from it. But this same stance, Heidegger argues, also belongs to the essence of modern science. The argument is that experimentation is an essential aspect of science, and that experimentation should itself be construed, as it was by Francis Bacon, as an ordering and challenging of materials so as to 'produce events'. That experimentation is a proper method of enquiry was not something that modern science hit upon as a lucky after-thought. Rather, given the 'stipulation' only to consider what is measurable and quantifiable, it belongs to the 'ground-plan' of science to engage in experiment. For nothing will count as measurable and quantifiable that does not lend itself, in principle at least, to experimental method. And since the aim of such enquiries is to establish 'when-then' regularities, it is essential to scientific practice to 'produce events' under specific experimental

conditions. For how else is one to establish, to the required level of exactness, that when X happens, then Y happens?

Crudely put, then, scientific research and technology share a similar 'mind-set'. Both the researcher and the technologist put nature on the rack, in the Baconian spirit; both demand that nature yield something up. That in the one case, the yield is quantified information acquired under experimental conditions while, in the other, it is coal, electricity or whatever in satisfaction of practical wants, should not be allowed to conceal the affinity. One way of appreciating the affinity is to recognise how decisively both the scientific attitude and the technological stance are opposed to the Greek experience of nature as *physis*. Nature as a mysterious 'upsurging presencing' is not something whose understanding could be gained by putting it on the experimenter's rack. Nor is it something that, thus experienced, could figure for human beings only as so many resources at our disposal.

One appreciates the affinity, too, by reflecting that, for science and technology alike, nature must be 'dis-encharmed' – stripped of all those aspects (religious significance, for example) that would make it resistant both to complete explanation in quantifiable 'when-then' terms and to being regarded as mere equipment. With these affinities appreciated, it is then easy to see how, in various ways, natural science and technology, once up and running, reinforce one another's projects. The prestige of science, which owes so much to a reliance on precision machinery and 'tool-preparation', is inherited by sophisticated and 'gigantic' interventions in nature that themselves rely on machinery. The successes of technological interventions in getting nature to produce 'a maximum yield at minimum expense' themselves confirm the impression that science is getting the world right in its announcement of the 'when-then' regularities that inform these interventions.

To return to the charge to which these remarks of Heidegger have been a response: while it is indeed one thing to experience the natural world pragmatically or anthropocentrically as 'standing-reserve', and another thing to spectate it, in the laboratory, as so much 'world-stuff', there is no difficulty in passing from the one to the other. For what 'holds sway' in both modes of experience is the same, and all the obstacles to experiencing nature in both those ways and no other have long been 'forgotten'.

THE PIVOTAL CLAIM

If the remarks in the previous section are well taken, then Heidegger is justified in holding that the claims he makes about nature in the three contexts of enquiry identified 'hang together'. In this final section, I want to suggest, as Heidegger himself does not explicitly do to my knowledge, that there is a rather specific, and crucial way they hold together. In my judgement, the claims he makes about

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the mistaken self-understanding of the natural sciences are pivotal in the sense that, if these are unwarranted, then his other claims – concerning the derivative character of our prevailing conception of nature and the ‘monstrousness’ of technology – lose the force Heidegger gives them. (Maybe those further claims could be defended, but not on the grounds that Heidegger does.) If I am right, then, ironically, it is the least well known of Heidegger’s discussions that is most central. (Most commentators on Heidegger on nature, including such competent ones as Michael Zimmerman (1990) and Charles Taylor (1992), have paid less attention to his philosophy of the natural sciences than to his ontology and his discussion of technology. An exception is George Pattison (2000).)

Let’s recall Heidegger’s main claim about the status of the natural sciences. These do not, as their champions standardly assume, deliver assertions and theories that are true of ‘nature as such’, nature as it anyway and objectively is independent of all human interest and perspective. Nor would it help if these champions more modestly maintained that the sciences, in their current state, only approximate to providing such a true account – that it must be left to an ideal physics of the future actually to provide it. For, since the deliverances of the sciences owe to a ‘stipulation in advance’, to the adoption of an a priori ‘ground-plan’, the sciences cannot be construed as offering even an approximation to a true account of ‘nature as such’. Rather, they offer just one, not especially privileged, description of how the world may reveal itself to us, and from a certain angle of interest.

Now suppose Heidegger is wrong about this and that the self-understanding of the natural sciences is after all warranted. Suppose, in other words, that scientific realism, in one sense of that elastic expression, is true: there is one and only one way the world anyway and fundamentally is, and the sciences tell us that way. What, to begin with, would then be the fate of Heidegger’s claims about the derivative, secondary character of this scientific conception of nature? The answer is that the familiar charge made against Heidegger of engaging, not in ontology, but in ‘mere’ anthropology would be an effective one. In other words, his critics could reasonably charge that in tracing the dependence of the prevailing conception on earlier conceptions of nature – that of *physis*, say – Heidegger is only telling an empirical, historical story. It may well be true, the critic will concede, that the Cartesian, scientific picture of nature would never have arisen except against the background of earlier pictures – but so what? The historical, anthropological story cannot show that the currently prevailing conception is secondary in the philosophically crucial sense of being less than fundamental, of failing to capture genuine, but now ‘forgotten’, dimensions of nature. The critic, in other words, may cheerfully admit that the prevailing conception has risen from the ashes of a forgotten conception, but then wish good riddance to the latter conception. Put simply, Heidegger’s critique of the self-understanding of the natural sciences must be correct if he is to be warranted in *complaining* of the atrophy and oblivion of earlier conceptions of nature.

Second, if Heidegger's critique is not warranted, then what becomes of his insistence that to reveal nature technologically as 'standing-reserve', as no more than a resource for us to tap, is 'monstrous'? One might, of course, still adduce familiar moral reasons against such a partial way of revealing: it may result in ecological devastation, endanger the survival prospects of future generations, cause suffering to animals, and so on. But while Heidegger occasionally adduces such considerations, these are clearly not the ones that primarily ground his own antipathy to technology. His own case rests on the incompatibility of technology with that 'letting things be' which manifests a proper appreciation of the integrity of things, a sense of ourselves as the guardians of mysterious processes of being, and a recognition that it is hubristic for human beings to make themselves the measure of 'how beings appear' and to regard themselves as answerable to nothing beyond their own projects.

But now, if the scientific realist is right – if modern physics' image of its own status is accurate – then appeals to the integrity of nature, to nature as something we could be answerable to, or to a mysterious significance possessed by natural processes are misconceived. Nature is simply 'matter endowed with force', in which case predicating meaning, integrity or normative measure of natural events and processes is senseless. The nature of the physicists is a dis-enchanted one. As John Passmore (1980) has insisted, nature as depicted by physics is not anything human beings could be responsible *to*, even if, for familiar moral reasons, it is something they should hold themselves responsible *for*.

Heidegger, then, needs to secure his critique of scientific realism, of the self-understanding of the natural sciences, if his further claims are to have the force he imagines. If unsecured, then his claim about the derivative character of the Cartesian conception is in danger of reducing to a philosophically unexciting historical hypothesis, while his charge of 'monstrousness' against technology is left without the distinctive kind of grounding that Heidegger invokes. As it happens, Heidegger's critique of scientific realism is, in my judgement, a powerful one. That is not a judgement I can argue for here, though elsewhere I have developed a critique that owes to Heidegger's insights (see Cooper 2002). The central insights, it seems to me, are that 'concern discovers nature as having a certain direction' (HCT 210), and that it is hubristic to imagine that we could so set aside or transcend our 'concern' – our interests, our sense of what matters, and so on – as to treat this as a 'discovery' of how the world anyway is, quite independently from our 'concern'. It is disappointing, given the importance of these insights – both in themselves and in the wider economy of Heidegger's thought – that few of the commentators who write on Heidegger's views of nature have devoted much attention to his critique of the self-understanding of the sciences.

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